THE AMERICAN YEAR BOOK

A Record of Events and Progress

YEAR 1925

EDITOR

ALBERT BUSHNELL HART, LL.D.

ASSOCIATE EDITOR

WILLIAM M. SCHUYLER

EDITED WITH THE COÖPERATION OF
A SUPERVISORY BOARD REPRESENTING NATIONAL LEARNED SOCIETIES

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PREFACE

The American Year Book is not a new-comer in the field of publication. Ten volumes appeared covering the years from 1910 to 1919; then for five years publication was suspended. The generous interest of Adolph Ochs has smoothed away difficulties in the way of resuming the work on a larger scale and with a wider survey of American affairs.

The prime motor behind this publication is the forty-five national societies whose representatives constitute an Advisory Board incorporated under the name "American Year Book Corporation." Acting in joint council as a body, and through a Board of Directors, this organization is ultimately responsible for the plan of the work, its scope, its lay-out, and its general point of view. Members of the board have acted as individual representatives in contributing or advising each for his own society in the field of his special knowledge and interest. Without such a general council, and this aid in securing contributors, it would have been impossible to bring together the variety of materials by competent hands necessary for such a work.

The principles of assemblage and subdivision of the Year Book are made clear by the Table of Contents. The whole range of events and discoveries and advances is subdivided into 40 so-called Divisions. These Divisions are all subdivided into sections, aggregating 360. While intended to include a general survey of American matters, it is impossible in the space to include all the fields of intellectual effort and accomplishment; and still more to deal with many additional topics which might be serviceable to readers and users of the book.

Many organizations and individuals, not directly represented in the forty-five societies, have given valued coöperation to the work, and have aided in the selection of contributors. To the volume of 1919, 118 persons contributed. The space in the new volume has been enlarged by about one-third, and the number of contributors has been raised to 256. The list of contributors reveals a broad range, both of subjects and of writers. It has been the aim of the editors throughout to find men and women of standing in their particular fields, who also possessed the gift of statement in literary form.

The plan has been followed of adding, at the end of each Division, a brief statistical survey of the field, where the subject admitted of such treatment; and then a brief list of selected books and periodical articles which appeared upon that general subject during the year 1925. Many references have been added dating from 1923 and 1924, because no Year Books were printed for those years. In future issues it is expected that the statistical and bibliographical data will be enlarged for all divisions.

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When the lay-out of the book was under discussion, the question came up whether any effort should be made to fill the gap between the volumes of 1919 and 1925. That could be done, however, only by reducing the space for 1925; and it was decided not to attempt any detailed treatment of events which occurred previous to that year.

The extension of space has made it possible to include several new and important fields. American History has been broken up into American Political History, American Government and American Relations to other Countries. Aëronautics has been made the subject of a Division. American Literature has been separated out of the former title of Literature and Language. A special Division has been created for the Work and Progress of Women. The last few years has seen the development on a great scale of a new type of education; hence the 1925 volume contains a special Division on Vocational Education.

The American Year Book is not intended to be an almanac of various concentrated information and statistics, but a general survey of the advance of the nation for each year, in its succession. It deals, therefore, not simply with political and governmental events, but with the progress of literature, art, science and education. It is intended to bring out particularly the new ideas and to chronicle the new results of scientific and other intellectual activity. It should be a sort of conspectus of the nation's progress.

At the same time it is meant to be a convenient hand-book for the reader and the expert who wish to know in brief what is going on in their own fields and in other fields; or who desire a quick and easy access into the things that have been done in a year. It is hoped that the book will be useful to writers in a great variety of subjects; to the users of libraries, to editors of the periodic and daily press, to publishers, to organizers of public institutions. It is intended to serve the general reader and also to be useful to the specialist who wishes to step outside of his detailed field of interest. It should serve as a hand-book for busy men of all kinds—editors, contributors, professional men, teachers, scientific workers, artists of many kinds, engineers, educators and business men, who wish to verify or confirm points that arise in their minds or to refer to a handy book of reference material, settling questions of fact. To facilitate such use the Table of Contents shows at a glance the Divisions and the Sections. A full and carefully analyzed Index opens up the connections and relations of any desired topic. At the head of every section is the name of the contributor who takes the responsibility.

The process of improving the lay-out of the book can doubtless go much further and the editors will at all times be glad to receive suggestions as to subjects that are not now treated but ought to be included, as to improvements in the classification, and as to general betterments of the plan and its organization. The expectation is that this series will continue indefinitely, so as to form a permanent consecutive record of events and progress in the United States of America.

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Archæological Institute of America.

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American Paleontological Society.

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Academy of Political Science in the City of New York.

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American Academy of Political and Social Science.

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American Society of International Law.

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National Municipal League.

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American Library Association.

CONTRIBUTORS

P. G. Agnew, B.L., A.M., Ph.D.: STANDARDIZATION.
Secretary, American Engineering Standards Committee.

Carroll S. Alden, B.A., Ph.D.: NAVAL EDUCATION.
Professor of English at U. S. Naval Academy.

Charles R. Allen, B.Sc.: VOCATIONAL EDUCATION.
Editor and Educational Consultant, Federal Board for Vocational Education.

Mary Anderson: WOMAN LABOR.
Chief of Women's Bureau, U. S. Department of Labor; chairman of conference of all national organizations of women; member, Academy of Political and Social Science, American Association for Labor Legislation, Women's Trade Union League.

Clement W. Andrews: BIOLOGICAL SCIENCES.
Librarian, John Crerar Library, Chicago.

Irene Osgood Andrews, A.B.: LABOR LEGISLATION.
Assistant Secretary, American Association for Labor Legislation.

John B. Andrews, A.B., A.M., Ph.D.: UNEMPLOYMENT.
Secretary, American Association for Labor Legislation.

Wallace W. Atwood, B.Sc., Ph.D.: PHYSICAL GEOGRAPHY.
President, Clark University and Clark College; fellow, Geological Society of America; member, Association of American Geographers, Commission Internationale de l'Atlas des Formes du Relief Terrestre.

Leonard S. Austin: COPPER.
Mining engineer, Los Angeles, California.

Peter Bain: NAVAL CONSTRUCTION; SHIPBUILDING; MERCHANT MARINE.
Editor, *Shipping*, New York.

Jennie Loitman Barron, A.B., LL.B., LL.M.: WOMAN CITIZENSHIP.
Member of the Massachusetts Bar, and of the Bar of the U. S. Supreme Court; chairman of Courts Committee on Legal Status of Women, Massachusetts League of Women Voters.

George A. Barton, A.B., A.M., Ph.D., LL.D.: SEMITIC LANGUAGES AND LITERATURE.
Professor of Semitic Languages at University of Pennsylvania.

William N. Bates, A.B., A.M., Ph.D.: CLASSICAL ARCHÆOLOGY.
Professor, and Head of Department of Greek, University of Pennsylvania; editor-in-chief, *American Journal of Archæology;* member, American Philological Association.

John Bauer: PUBLIC SERVICE COMMISSIONS.
City Law Department, New York.

Albert Croll Baugh, Ph.D.: ENGLISH LANGUAGE AND LITERATURE.
Assistant Professor of English at University of Pennsylvania.

Ethel L. Baxter: BANKING BIBLIOGRAPHY.
Librarian, American Bankers' Association.

Harold R. Bayley: FOREIGN EXCHANGE.
Bayley & Mills, foreign exchange brokers, New York.

May Lamberton Becker: BIBLIOGRAPHY OF WOMEN'S WORK; LITERARY CONTRIBUTIONS OF WOMEN.
Contributing Editor, *The Saturday Review of Literature;* lecturer on contemporary literature.

D. D. Berolzheimer, Ph.D.: BIBLIOGRAPHY OF CHEMISTRY AND PHYSICS.
Consulting Bibliogapher; member, American Chemical Society.

Morris Bien, Ph.B., LL.B., LL.M.: PUBLIC RESOURCES AND PUBLIC WORKS.
Civil Engineer; Attorney and Counsellor at Law, Washington.

Archibald Black: COMMERCIAL AVIATION.
Consulting Aëronautical Engineer; member, Society of Automotive Engineers, Aëro Chamber of Commerce, National Aëronautic Association.

Henry W. Blake, Ph.B.: URBAN AN INTERURBAN TRACTION.
Senior Editor, *Electric Railway Journal*, New York; member, American Institute of Electrical Engineers, American Electric Railway Association.

L. E. Bowman, A.B.: RECREATION.
Instructor in Sociology at Columbia University; secretary, City Recreation Committee, New York.

S. J. Brandenburg, Ph.D.: LAND CONDEMNATION; WATER RIGHTS.
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Robert M. Brown, Ph.D.: EXPLORATIONS.
Professor, Department of Geology and Geography, Rhode Island College of Education.

C. A. Browne, B.A., M.A., Ph.D.: AGRICULTURAL CHEMISTRY.
Chief, Bureau of Chemistry, U. S. Department of Agriculture.

Andrew A. Bruce, A.B., LL.B.: CRIMINAL JUSTICE.
Professor at Northwestern University Law School; member, American Bar Association; vice-president, National Commission on Uniform State Laws.

Friedrich Bruns, Ph.D.: GERMANIC LANGUAGES AND LITERATURE.
Associate Professor of German at University of Wisconsin.

William E. Buffington: POSTAL BANKING.
Director of Postal Savings, U. S. Post Office Department.

W. Randolph Burgess, A.B., A.M., Ph.D.: FEDERAL RESERVE BANKS.
Assistant Federal Reserve Agent, Federal Reserve Bank, New York; member, American Statistical Association.

Allison Butts, A.B., S.B.: LEAD.
Assistant Professor of Metallurgy at Lehigh University; Associate Editor, *The Mineral Industry.*

Godfrey L. Cabot, A.B.: AIR NAVIGATION.
President, National Aëronautic Association of the United States of America.

W. F. Callander, Ph.D.: GRAIN CROPS.
Chairman, Crop Reporting Board, Bureau of Agricultural Economics, U. S. Department of Agriculture.

Leon Cammen, M.A.: MECHANICAL ENGINEERING.
Associate Editor of *Mechanical Engineering.*

Ernest W. Camp: TARIFF ADMINISTRATION.
Director of Customs, Division of Customs, U. S. Treasury Department.

H. K. Carroll, LL.D.: RELIGION AND RELIGIOUS ORGANIZATION.
Secretary, Ecumenical Methodist Commission; Corresponding Secretary, Francis Asbury Memorial Association.

C. C. Carstens: CHILD WELFARE.
Executive Director, Child Welfare League of America.

Harcourt L. Caverly, A.B.: TRANSPORTATION AND COMMUNICATION.
Assistant Professor of Economics at University of Michigan.

Howard L. Clark: MANUFACTURING STATISTICS.
Assistant to the Editor, *Manufacturers Record,* Baltimore.

F. A. Cleveland, Ph.B., Ph.D.: BUDGET SYSTEM.
Professor of Citizenship at Boston University.

H. Burdett Cleveland: REFUSE DISPOSAL.
Consulting Sanitary Engineer, New York.

F. W. Coe: FORTIFICATIONS.
Major General, U. S. A.; Chief of Coast Artillery, War Department.

Alzada Comstock, Ph.D.: INHERITANCE TAXES; PUBLICITY OF TAXES.
Associate Professor of Economics at Mt. Holyoke College.

Edwin F. Cone: IRON AND STEEL.
Associate Editor, *The Iron Age,* New York.

Milton Conover, Ph.D.: PERSONNEL AND RULES OF CONGRESS.
Assistant Professor of Government at Yale University.

Arthur E. Cook, LL.B.: IMMIGRATION.
Assistant to the Secretary of Labor.

R. A. Cooper: FARM LOAN BANKS.
Commissioner, Federal Farm Loan Bureau, Treasury Department.

Douglas F. Cox: MARINE INSURANCE.
President, United States Merchants' and Shippers' Insurance Company, New York.

Robert T. Crane, Ph.D.: CITY PLANNING.
Professor of Political Science at University of Michigan.

Harrison W. Craver, B.Sc.: MINERAL INDUSTRIES BIBLIOGRAPHY; ENGINEERING BIBLIOGRAPHY.
Librarian of Engineering Societies Library, New York.

Nelson Antrim Crawford, B.A., M.A.: AGRICULTURAL BIBLIOGRAPHY.
Director of Information, Bureau of Publications, U. S. Department of Agriculture.

Raymond P. Crist, LL.B.: RELATION OF IMMIGRATION TO CITIZENSHIP.
Commissioner of Naturalization, Bureau of Naturalization, U. S. Department of Labor.

H. Lamar Crosby, A.M., Ph.D.: GREEK LITERATURE.
Professor of Greek at University of Pennsylvania.

Joseph E. Cummings: RAILROADS, CONSOLIDATION.
Professor in the School of Business, University of Minnesota.

John Gould Curtis, A.B., LL.B.: WAGES AND HOURS OF LABOR.
Member of the Pennsylvania Bar; fellow, American Geographical Society.

Frank Cushman, A.B.: VOCATIONAL EDUCATION.
Chief, Trade and Industrial Education Service, Federal Board for Vocational Education.

Arthur H. Daniels, A.B., B.D., Ph.D.: PROFESSIONAL SCHOOLS.
Dean of Graduate School, University of Illinois; member, American Philosophical Association.

J. B. Davidson, B.Sc., M.E., A.E.: FARM MACHINERY.
Professor of Agricultural Engineering at Iowa State College; member, American Society of Agricultural Engineers, Society of Automotive Engineers.

Herbert Davis, M.D.: SURGERY.
Director of Laboratory of Experimental Surgery, University of Nebraska Medical School.

W. H. Davis, A.B., M.D.: VITAL STATISTICS.
Chief Statistician for Vital Statistics, Bureau of the Census, U. S. Department of Commerce.

J. H. Dellinger, A.B., Ph.D.: RADIO.
Chief of Radio Laboratory, Bureau of Standards, U. S. Department of Commerce; President, The Institute of Radio Engineers; member, American Geophysical Union.

Davis R. Dewey, A.B., Ph.D., LL.D.: PUBLIC FINANCE.
Professor of Economics and Statistics at Massachusetts Institute of Technology; managing editor, *American Economic Review;* fellow, American Academy of Arts and Sciences.

Emma H. de Zouche: WOMEN'S WORK.
Political writer and Feminist.

Paul H. Douglas, Ph.D.: WORKMEN'S COMPENSATION; OLD AGE PENSIONS.
Professor in School of Commerce and Administration, University of Chicago.

Raymond S. Dugan, B.A., M.A., Ph.D.: ASTRONOMY.
Professor of Astronomy at Princeton University; fellow, American Association for the Advancement of Science; member, American Astronomical Society.

F. Lowell Dunn, B.S., M.D.: MEDICINE.
Assistant Professor at University of Nebraska Medical School.

Gurden Edwards: BANKS AND BANKING.
Director, Public Relations Commission, American Bankers Association.

W. Elmer Ekblaw, B.Sc.: ECONOMIC GEOLOGY.
Managing Editor, *Economic Geography,* Clark University.

Ray H. Everett, A.B., LL.B.: SOCIAL HYGIENE.
Director, Department of Public Information, American Social Hygiene Association; managing editor, *Journal of Social Hygiene.*

E. Porter Felt, D.Sc.: SYSTEMATIC ENTOMOLOGY.
State Entomologist, State Museum, University of the State of New York; Editor, *Journal of Economic Entomology;* member, American Association of Economic Entomologists.

John F. Fennelly: CONTROL OF PRODUCTION.
Associate Editor, *Commerce and Finance,* New York.

Charles G. Fenwick, A.B., Ph.D.: INTERNATIONAL NEGOTIATIONS
Professor of Political Science at Bryn Mawr College.

Colin G. Fink, B.A., M.A., Ph.D.: ELECTROCHEMISTRY.
Professor, Department of Chemical Engineering, Columbia University; secretary, American Electrochemical Society; member, National Research Council, American Institute of Mining and Metallurgical Engineers.

CONTRIBUTORS

Morris Fishbein, B.Sc., M.D.: MEDICAL BIBLIOGRAPHY.
Editor, *Journal of the American Medical Association;* associate in the History of Medicine at University of Chicago School of Medicine.

Ralph Flint: SCULPTURE.
Art Critic for *The Christian Science Monitor.*

Richard W. Flournoy, Jr.: CITIZENSHIP AND NATURALIZATION.
Department of State.

Robert F. Foerster, A.B., Ph.D.: RACE CONDITIONS.
Professor of Economics at Princeton University; director of Industrial Relations Section, Department of Economics and Social Institutions; member, American Economics Association.

James Ford, Ph.D.: INDIVIDUAL HOUSING.
Associate Professor of Social Ethics at Harvard University; Executive Director, Better Homes in America.

George W. Fuller, S.B.: SEWAGE DISPOSAL.
Hydraulic and Sanitary Engineer, New York.

William Addleman Ganoe: THE ARMY.
Major, U. S. A.; Historical Section, Army War College.

Harry S. Ganders, Ph.D.: TRAINING AND TENURE OF TEACHERS.
Professor of Educational Administration at Colorado State Teachers College.

Frederick W. Gehle: STATUS OF GOLD.
Vice-President, Mechanics and Metals National Bank, New York.

John M. Gillette, A.B., A.M., Ph.D.: FAMILY LIFE.
Professor and Head of Department of Sociology, University of North Dakota; member, Advisory Board of National Child Labor Committee, American Sociological Society.

J. L. Gillin, B.Litt., A.B., A.M., Ph.D., B.D.: JUSTICE AND ORDER.
Professor of Sociology at University of Wisconsin; member, American Sociological Society; member, National Conference for Social Work.

Sheldon Glueck, Ph.D., LL.M.: CRIME AND DELINQUENCY.
Instructor, Department of Social Ethics, Harvard University; member of New York State Bar.

John M. Goodell: CIVIL ENGINEERING.
Consulting Engineer, New York; member, American Society of Civil Engineers.

Ernest P. Goodrich, B.Pd., B.Sc.: STREETS.
Consulting Engineer; Sage Foundation.

Thomas W. Gosling, Ph.D.: HIGH SCHOOLS.
Superintendent of Schools, Madison, Wisconsin.

Frank D. Graham, Ph.D.: CONDITIONS OF COMMERCE.
Professor of Economics at Princeton University.

Henry S. Graves, A.B., A.M.: Forestry.
Dean of School of Forestry, Yale University; honorary member, Royal British Arboricultural Society; fellow, American Geographical Society; honorary member, American Academy of Arborists.

H. Noyes Greene: Legislation and Jurisprudence.
Editor with The Edward Thompson Company, Northport, New York.

Sarah Greer: Public Utilities.
Librarian, Bureau of Municipal Research, National Institute of Public Administration.

R. Dawson Hall: Coal and Coke.
Engineering Editor, *The Coal Age*, New York.

C. L. Hall: Military Bibliography.
Major, U. S. A., Office of Chief of Staff, War Department.

J. M. Hall: Vocational Guidance and Placement.
Regional Agent, Federal Board for Vocational Education, Washington.

George L. Hamilton, A.B., A.M., Ph.D.: Romance Languages and Literature.
Professor of Romance Languages and Literatures at Cornell University.

Frank H. Hankins, A.B., Ph.D.: Bibliography of Social Problems.
Professor of Sociology at Smith College; member, American Sociological Society, Academy of Political Science, Sociological Society of London.

William E. Hannan: Tax Legislation.
Legislative Reference Librarian, New York State Library.

E. R. Hardy: Fire Insurance.
Assistant Manager, New York Fire Insurance Exchange.

J. Arthur Harris, A.B., A.M., Ph.D.: Statistics of Biology.
Professor of Botany at University of Minnesota; member, American Society of Naturalists, Botanical Society of America.

Albert Bushnell Hart, A.B., Ph.D., LL.D., Litt.D.: The National Government.
Eaton Professor of the Science of Government at Harvard University.

Helen Hart, A.B.: Immigrant Education.
Head Worker, East Side Settlement House, New York.

Hornell Hart, A.B., Ph.D.: Social Work.
Associate Professor of Social Economy at Bryn Mawr College.

R. J. Haskell, Ph.D.: Plant Diseases.
Assistant Pathologist in Charge, Plant Disease Survey, Bureau of Plant Industry, U. S. Department of Agriculture.

Robert A. Hatcher, Ph.G., M.D.: PHARMACOLOGY.
Professor of Pharmacology at Cornell Medical School; member, American Society of Pharmacology and Experimental Therapeutics.

Daniel L. Hazard, A.B.: TERRESTRIAL MAGNETISM.
Assistant Chief, Division of Terrestrial Magnetism and Seismology, U. S. Coast and Geodetic Survey.

James B. Hedges, Ph.D.: TERRITORIES AND DEPENDENCIES.
Associate Professor of American History at Clark University.

Margaret de Forest Hicks: DIPLOMATIC PERSONNEL.
Author and Political Expert in Military Intelligence Division, War Department General Staff.

Charles E. Hill, A.B., A.M., Ph.D.: TWELVE MILE LIMIT; TERRITORIES AND DEPENDENCIES.
Professor of Political Science at George Washington University.

Frank T. Hines, LL.D.: VETERANS.
Brigadier General, O. R. C.; Director, U. S. Veterans' Bureau.

Frederick L. Hoffman, LL.D.: CRIME CONDITIONS.
Consulting Statistician, Prudential Insurance Company, Newark.

Arthur N. Holcombe, A.B., Ph.D.: THE NATIONAL GOVERNMENT.
Professor of Government at Harvard University.

William A. Hooker, B.Sc., LL.M., D.V.M.: ECONOMIC ENTOMOLOGY.
Editor Department of Economic Entomology, *Experiment Station Record,* U. S. Department of Agriculture.

J. Edgar Hoover: IDENTIFICATIONS.
Director, Bureau of Investigation, U. S. Department of Justice.

H. L. Horning: AUTOMOBILE ENGINEERING.
President, Society of Automotive Engineers; President and General Manager, Waukesha Motor Company.

Frances R. Howard: STATISTICS OF ART.
Editor, *American Art Annual.*

Henry V. Hubbard, A.B., A.M., S.B.: PARKS.
Professor of Landscape Architecture at Harvard University; Chief Editor, *Landscape Architecture;* fellow, American Society of Landscape Architects; member, American City Planning Institute.

A. H. Hubbell: PETROLEUM.
Managing Editor, *Engineering and Mining Journal-Press.*

Solomon S. Huebner, B.S., M.S., Ph.D.: ECONOMIC AND BUSINESS CONDITIONS.
Professor of Insurance and Commerce at University of Pennsylvania; Associate Editor, *Annals of American Academy of Political and Social Science;* member, American Institute of Banking.

Merlin H. Hunter, Ph.D.: PUBLIC FINANCE.
Associate Professor of Economics at University of Illinois.

W. R. Ingalls, S.B., E.D.: ZINC.
Consulting Engineer, New York; member, American Institute of Mining and Metallurgical Engineers.

William M. Jardine, B.Sc., LL.D.: FARMING.
Secretary of Agriculture; fellow, American Association for the Advancement of Science; member, Executive Board, National Research Council; Advisory Council, Agricultural Commission of the American Bankers Association.

H. S. Jennings, B.Sc., A.M., Ph.D., LL.D., D.Sc.: ORGANIC EVOLUTION.
Henry Walters, Professor of Zoölogy and director of Zoölogical Laboratory, Johns Hopkins University; member, Society of Experimental Biology and Medicine.

Jens P. Jensen, Ph.D.: TAXATION.
Professor of Economics at University of Kansas.

W. L. G. Joerg: CARTOGRAPHY.
Editor, Research Series, American Geographical Society; member, Division of Geology and Geography, National Research Council.

F. Ernest Johnson, A.B., B.D.: PROHIBITION.
Executive Secretary, Department of Research and Education, Federal Council of Churches of Christ in America.

James Weldon Johnson, A.B., A.M., Litt. D.: MOB VIOLENCE AND LYNCHING.
Secretary, National Association for Advancement of Colored People; director, American Fund for Public Service.

Robinson G. Jones, A.B., A.M., D.Pd.: MODERN METHODS IN EDUCATION.
Superintendent of Schools, Cleveland.

Frank J. Katz: MINERAL STATISTICS.
Engineer in charge, Division of Mineral Resources and Statistics, Bureau of Mines, U. S. Department of Commerce.

Charles H. Keene, M.D.: HEALTH, PHYSICAL AND SEX EDUCATION.
Professor of Hygiene and Director of Physical Education at University of Buffalo.

James F. Kemp, A.B., D.Sc., E.M., LL.D.: BIBLIOGRAPHY OF BIOLOGY.
Professor of Geology at Columbia University; manager and scientific director, New York Botanical Gardens.

Theodore Reed Kendall, S.B., M.C.E.: WATER SUPPLY.
Engineering Editor, *American City Magazine;* associate member, American Society of Civil Engineers; member, American Water Works Association, New England Water Works Association.

E. H. Kennard, Ph.D.: PHYSICS.
Assistant Professor of Physics at Cornell University.

Roland G. Kent, B.A., B.L., M.A., Ph.D.: INDO-EUROPEAN PHILOLOGY; INTERNATIONAL AUXILIARY LANGUAGES.
Professor of Comparative Philology at University of Pennsylvania; Secretary, Linguistic Society of America.

Charles Kettleborough: ELECTORAL LAWS.
Director, Indiana Legislative Bureau.

James E. Kindred, Ph.D.: VERTEBRATE ZOÖLOGY.
Assistant Professor of Histology and Embryology at University of Virginia.

William A. Kinnan, B.Sc., M.D.: PATENTS AND INVENTIONS.
First Assistant Commissioner, U. S. Patent Office, Department of Commerce; member of the Bar of the U. S. Supreme Court; member, National Research Council.

Julius Klein, B.Litt., A.M., Ph.D.: FOREIGN TRADE.
Director, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce; member, American Economics Associatio American Historical Association.

C. F. Klinefelter: ORGANIZATIONS FOR VOCATIONAL EDUCATION.
Special Agent for Trade and Industrial Education, Federal Board for Vocational Education.

John A. Krout, A.B., A.M.: POLITICAL HISTORY.
Instructor in History at Columbia University.

Herbert S. Langfeld, A.B., Ph.D.: PSYCHOLOGY.
Professor of Psychology and Director of the Psychological Laboratory, Princeton University.

C. W. Larson, B.Sc., M.S., Ph.D.: DAIRYING AND LIVE STOCK.
Chief of Bureau of Dairying, U. S. Department of Agriculture; member, American Dairy Science Association, Washington Academy of Sciences.

Algernon Lee: SOCIALISM.
Educational Director, Rand School of Social Science; an editor of *The New Leader.*

M. M. Leighton: STATE GEOLOGICAL SURVEYS.
Chief, Illinois Geological Survey; Secretary, Association of American State Geologists.

Charles E. Locke, S. B.: MINING AND ORE DRESSING.
Professor of Mining Engineering at Massachusetts Institute of Technology; member, American Institute of Mining Engineers.

Owen R. Lovejoy, A.B., A.M., LL.D.: CHILD LABOR.
General Secretary, National Child Labor Committee; Editor, *The American Child;* director, Information Bureau, American Child Health Association; director, American Political Science Association.

A. H. MacCormick, Ph.D.: PRISONS.
Professor at Bowdoin College.

George Grant MacCurdy, A.B., A.M., Ph.D.: ANTHROPOLOGY AND ETHNOLOGY.
Research Associate in Prehistoric Archæology with Professorial Rank; Curator of Anthropology, Peabody Museum, Yale University; director of the American School of Prehistoric Research.

Thomas H. MacDonald, B.C.E.: HIGHWAYS AND MOTOR ROADS.
Chief, Bureau of Public Roads, U. S. Department of Agriculture.

Arch Mandel, A.B.: POLICE.
Director, Dayton Research Association; member, American Institute of Criminal Law and Criminology, National Municipal League.

Lawrence B. Mann: MANUFACTURES.
Acting Chief, Division of Statistical Research, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

H. A. Marmer, B.Sc.: OCEANOGRAPHY AND OCEAN EXPLORATION.
Assistant Chief, Division of Tides and Currents, U. S. Coast and Geodetic Survey.

J. Clyde Marquis, B.Sc., M.S.: AGRICULTURAL LEGISLATION.
Director of Economic Information, Bureau of Agricultural Economics, U. S. Department of Agriculture; economist with *Washington Herald.*

Arthur Richmond Marsh, A.B.: CONTROL OF FUTURES.
Editor, *The Economic World;* member, New York Cotton Exchange; President and Treasurer, The Chronicle Company.

Frederick H. Martens: MUSICIANS AND MUSICAL PERFORMANCES.
Writer on musical topics, Rutherford, New Jersey; Contributing Editor, *Art of Music.*

Thomas O. Marvin, B.D.: TARIFF COMMISSION.
Chairman, U. S. Tariff Commission.

Kirtly F. Mather, B.Sc., Ph.D.: DYNAMIC GEOLOGY; EARTHQUAKES.
Associate Professor of Physiography and Chairman of the Department of Geology and Geography, Harvard University; geologist, U. S. Geological Survey; fellow, Royal Geographical Society.

John M. Mathews, A.B., Ph.D.: STATE GOVERNMENT.
Professor of Political Science at University of Illinois; member, American Political Science Association, American Society of International Law.

W. D. Matthew, A.B., Ph.B., A.M., Ph.D.: VERTEBRATE PALEONTOLOGY.
Curator, American Museum of Natural History.

Howard Lee McBain, B.A., M.A., Ph.D.: FEDERAL JUDICIARY.
Eaton Professor of the Science of Government at Columbia University; Associate Editor, *National Municipal Review,* and *Political Science Quarterly.*

Frank McIntyre: TERRITORIES AND DEPENDENCIES.
Major General, U. S. A.; Chief, Bureau of Insular Affairs, War Department.

A. W. McKay: Farm Marketing.
Marketing Economist, Bureau of Agricultural Economics, U. S. Department of Agriculture.

Leila Mechlin, M.A.: Painting, Bibliography of Arts.
Secretary, American Federation of Arts; Editor, *The American Magazine of Art*; art critic, *Washington Evening Star.*

A. J. Miller, M.D.: Pathology.
Professor of Clinical Pathology at University of Nebraska Medical School.

George A. Miller, A.B., Ph.D.: Mathematics.
Professor of Mathematics at University of Illinois.

Gladys A. Mock: Art Sales and Exhibitions.
Of the American Federation of Arts.

W. A. Moffett: Naval Aëronautics.
Rear Admiral, U. S. N.: Chief, Bureau of Aëronautics, Navy Department.

John R. Mohler, V.M.D., D.Sc.: Diseases and Pests of Animals.
Chief, Bureau of Animal Industry, U. S. Department of Agriculture; member, Society of American Bacteriologists, American Veterinary Medical Association.

F. W. Mohlman, Ph.D.: Sanitary Chemistry.
Chief Chemist, Sanitary District of Chicago.

Parker T. Moon, B.Sc., Ph.D.: International Relations.
Professor of Political Science at Columbia University; Secretary and trustee of the Academy of Political Science in the City of New York; Managing Editor, *Political Science Quarterly.*

Joy Elmer Morgan, A.B., B.L.S.: Bibliography of Academic Education.
Editor, *National Journal of Education,* Washington.

Ruth Morgan: Women's Work for Peace.
Director, Research Division, National Education Association; Vice President, and Chairman of Department for International Coöperation to Prevent War, National League of Women Voters; member, Executive Committee, Foreign Policy Association.

Roland S. Morris, A.B., LL.B., LL.D.: European Affairs and America.
Member, American Bar Association, Pennsylvania Bar Association; Special Lecturer on International Law at University of Pennsylvania.

Denys P. Myers, A.B.: Influence of United States on World Affairs.
Corresponding Secretary and Librarian, World Peace Foundation; Editor, Source Materials, *Foreign Affairs.*

Walter Nelles: Freedom of Opinion.
Publicist: member of the New York Bar.

E. L. Newcomb, Ph.M., Ph.D.: ECONOMIC BOTANY.
Professor, School of Pharmacy, University of Minnesota; Editor, *Northwestern Druggist;* member, Committee of Revision of the Pharmacopœia of the United States of America.

Mabel Newcomer, Ph.D.: INCOME TAX.
Professor of Economics at Vassar College.

John K. Norton: PRIMARY AND GRADE SCHOOLS; STATISTICS OF EDUCATION.
Director, Research Division, National Education Association.

Howard W. Odum, A.B., A.M., Ph.D.: SOCIOLOGY.
Kenan Professor of Sociology, and Director of the School of Public Welfare, University of North Carolina.

H. M. Olmsted: MUNICIPAL OWNERSHIP.
Consulting Engineer-Accountant and Public Utility Rate Expert, New York.

A. Heath Onthank: BUSINESS STATISTICS.
Chief, Domestic Commerce Division, U. S. Department of Commerce.

William H. Park, A.B., M.D., LL.D.: BACTERIOLOGY.
Consulting Bacteriologist and Examiner in Bacteriology, Department of Health, New York.

H. C. Parmelee, B.Sc., A.M., D.Sc.: CHEMICAL ENGINEERING.
Editor, *Chemical and Metallurgical Engineering*, New York; member, American Institute of Chemical Engineers, American Chemical Society.

Thomas B. Paton: BANKING STATISTICS.
General Counsel, American Bankers Association.

Rudolph Pintner, M.A., Ph.D.: MENTAL TESTS.
Professor of Education at Teachers College, Columbia University; member, American Psychological Association.

L. B. Porterfield: NAVAL RECRUITING.
Captain, U. S. N.; Bureau of Navigation, Navy Department.

George K. Pratt, M.D.: MENTAL HYGIENE.
Assistant Medical Director, National Committee of Mental Hygiene.

M. M. Proffitt: VOCATIONAL EDUCATION.
Specialist in Industrial Education, U. S. Bureau of Education.

Harold S. Quigley, A.B., Ph.D.: ORIENTAL RELATIONS OF AMERICA.
Professor of Political Science at University of Minnesota.

John J. Quigley, A.B., A.M.: PRICE FIXING.
Columbia University.

Lewis Radcliffe: FISHERIES.
Acting Commissioner, Bureau of Fisheries, U. S. Department of Commerce.

W. H. Rastall: Engineering and Construction Statistics.
Chief, Industrial Machinery Division, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

A. Duncan Reid: Automobile Liability Insurance.
President, Globe Indemnity Company, Newark.

Calvin W. Rice, S.B.: Mechanical Engineering.
Member, American Society of Mechanical Engineers; fellow, American Institute of Electrical Engineers; member, Institute of Electrical Engineers (London); honorary member, Koninklijk Instituut van Ingenieure.

Stuart A. Rice, Ph.D.: Sociology Applied to History and Government.
Professor of Sociology at Dartmouth College.

Bernard G. Richards: The Jewish Church.
Executive Secretary, American Jewish Congress.

Theodore G. Risley, B.Sc., LL.B.: Immigration; Deportation; Registry.
Solicitor of U. S. Department of Labor.

David A. Robertson: Exchanges of Teachers and Students with Foreign Countries.
Assistant Director, American Council of Education.

R. S. Robertson: Armaments.
Lieutenant, U. S. N.; Historical Section, Navy Department.

Frederick B. Robinson, A.B., A.M., Ph.D.: Colleges and Universities.
Dean of the School of Business and Civic Administration, Director of the Evening Sessions, College of the City of New York.

Louis N. Robinson, A.B., Ph.D.: Movements to Check Crime.
Russell Sage Foundation; member, American Institute of Criminal Law and Criminology, American Economics Association, American Statistical Association.

W. L. Rodgers: The Navy.
Rear Admiral, U. S. N.; member, American Philosophical Society.

Lindsay Rogers, A.B., Ph.D., LL.B.: Governmental Development in America and Abroad.
Associate Professor of Government at Columbia University; associate editor of *Political Science Quarterly*, and of *American Political Science Review*.

John C. Rolfe, A.B., A.M., Ph.D.: Ancient Literature and Philology—Latin.
Professor of Latin Languages and Literature at University of Pennsylvania; member, American Philological Association.

Edward F. Rowse: American History.
Head, Manuscripts and History Section, New York State Library.

R. E. Saleski, Ph.D.: Modern Languages.
Professor at University of Delaware.

Herbert W. Schneider, Ph.D.: PHILOSOPHY.
Professor at Columbia University; assistant editor, *Journal of Philosophy.*

William M. Schuyler: THE INSTITUTE OF POLITICS.
Editor, Institute of Politics Bureau of Records, 1925.

Winfield Scott: PENSIONS.
Commissioner of Pensions, U. S. Department of the Interior.

James Lee Sellers, Ph.D.: POLITICAL PERSONALITIES.
Assistant Professor of History at University of Wisconsin.

William R. Shands: BLUE SKY LAWS.
Director, Securities Division, Virginia State Corporation Commission.

E. W. Sheets, B.Sc., M.S.: DAIRYING AND LIVESTOCK.
Chief, Animal Husbandry Division, Bureau of Animal Industry, U. S. Department of Agriculture.

Herbert N. Shenton, Ph.B., M.A., B.D.: SOCIAL WORK OF RELIGIOUS ORGANIZATIONS.
Instructor in Sociology at Columbia University; member, Executive Committee, Methodist Federation for Social Service, American Academy of Political and Social Science.

E. H. H. Simmons: CONTROL OF STOCK AND OTHER EXCHANGES.
President, New York Stock Exchange.

Francis S. Sisson, A.B., LL.D.: PUBLIC DEBTS; LOANS TO ALLIES.
Vice President, Guaranty Trust Company of New York; member, American Economic Association, Academy of Political Science.

R. O. Small: BIBLIOGRAPHY OF VOCATIONAL EDUCATION.
Director, Massachusetts Board for Vocational Education.

George Otis Smith, A.B., A.M., Ph.D., D.Sc.: FEDERAL GEOLOGICAL SURVEYS.
Director, U. S. Geological Survey, Department of the Interior.

George Soule, A.B.: LABOR CONDITIONS.
Director of Labor Bureau, Inc.; member, Editorial Staff, *The New Republic;* member, American Academy of Political and Social Science, American Association for Labor Legislation.

J. Duncan Spaeth, A.B., Ph.D., Litt.D.: AMERICAN LITERATURE.
Professor of English at Princeton University; member, Modern Language Association, American Dialect Association, American Academy of Social and Political Science.

William Spry: PUBLIC LANDS.
Commissioner, General Land Office, U. S. Department of the Interior.

Percy G. Stiles, M.D.: PHYSIOLOGY.
Professor of Physiology at Harvard Medical School.

O. C. Stine, Ph.B., Ph.D.: AGRICULTURAL STATISTICS.
In charge, Division of Statistical and Historical Research, Bureau of Agricultural Economics, U. S. Department of Agriculture.

Carl W. Stocks: MOTOR BUS SERVICE.
Editor, *Bus Transportation*, New York.

Benjamin Stolberg: BOLSHEVISM.
Journalist and Publicist, New York.

Wendell M. Strong, B.A., M.A., LL.B.: LIFE INSURANCE; ACCIDENT, HEALTH, AND LIABILITY INSURANCE.
Associate Actuary, Mutual Life Insurance Company.

Graham H. Stuart, Ph.D.: LATIN-AMERICAN RELATIONS.
Professor of Political Science at Stanford University.

James Swan: NAVAL ARCHITECTURE; MARINE ENGINEERING.
Editor, *Marine Engineering and Shipping Age*, New York.

Virginia Tanner: PAGEANTS.
Pageant Manager, Cambridge, Massachusetts.

Harry Taylor: WATERWAYS AND HARBORS.
Major General, U. S. A.; Chief of Engineers, War Department.

Hugh S. Taylor, Ph.D.: INORGANIC AND PHYSICAL CHEMISTRY.
Professor of Physical Chemistry at Princeton University.

William A. Taylor, B.S., D.Sc.: HORTICULTURE.
Chief, Bureau of Plant Industry, U. S. Department of Agriculture; member, American Society for the Promotion of Agricultural Science, American Pomological Society.

Aubrey Tealdi, Ph.D.: LANDSCAPE ARCHITECTURE.
Professor of Landscape Design at University of Michigan.

Walter M. Thayer, Jr., M.D.: DEFECTIVE DELINQUENTS.
Superintendent, State Institution for Defective Delinquents, Napanock, New York.

Arthur W. Thomas, Ph.D.: BIOLOGICAL AND FOOD CHEMISTRY.
Associate Professor of Food Chemistry at Columbia University.

H. J. Van Cleave, Ph.D.: INVERTEBRATE ZOÖLOGY.
Professor of Zoölogy at University of Illinois; secretary, American Microscopical Society.

Burton M. Varney: METEOROLOGY AND CLIMATOLOGY.
Assistant Editor, Weather Bureau, U. S. Department of Agriculture.

August Vollmer: PREVENTION OF DELINQUENCY.
Chief of Police, Berkeley, California.

M. W. von Bernewitz: GOLD AND SILVER.
U. S. Bureau of Mines, Pittsburgh, Pennsylvania.

C. Laurence Warwick, B.Sc.: MATERIALS OF ENGINEERING.
Secretary-Treasurer, American Society for Testing Materials.

Maurine Watkins, A.B.: MOTION PICTURES; THE DRAMA.
Associate Editor with The Macmillan Company; member of The 47 Workshop; Motion Picture and Dramatic Critic.

Roger H. Wells, Ph.D.: STATE AND COUNTY GOVERNMENT.
Professor of Economics and Politics at Bryn Mawr College.

Ray B. Westerfield, B.A., M.A., Ph.D.: NATIONAL CURRENCY.
Professor of Political Economy at Yale University; member, American Economics Association.

James A. Wetmore, LL.B.: PUBLIC BUILDINGS.
Acting Supervising Architect, U. S. Treasury Department.

C. N. Weyl, Ph.D.: ELECTRICAL ENGINEERING.
Assistant Professor of Electrical Engineering at University of Pennsylvania.

C. H. Whitaker: ARCHITECTURE.
Editor, *The Journal of the American Institute of Architects.*

Charles P. White, A.M.: LICENSE TAXES; AUTOMOBILE TAXES.
Instructor in Economics at University of Pennsylvania.

Herbert T. Whitlock, C.E.: MINERALOGY AND PETROLOGY.
Curator of Mineralogy, American Museum of Natural History.

Frank C. Whitmore, A.B., A.M., Ph.D.: ORGANIC CHEMISTRY.
Professor of Organic Chemistry at Northwestern University; member, American Chemical Society, American Electrochemical Society, Deutsche Chemische Gesellschaft.

Francis G. Wickware, B.A., B.Sc.: BOOK PUBLISHING.
Editor with D. Appleton and Company, New York.

Delos F. Wilcox, A.B., A.M., Ph.D.: ELECTRIC LIGHTING AND POWER.
Public Utility Expert, Grand Rapids, Michigan; member, American Economics Association, American Political Science Association, Academy of Political Science.

Malcolm Willey, Ph.D.: SOCIOLOGY APPLIED TO HISTORY AND GOVERNMENT.
Professor of Sociology at Dartmouth College.

C. E. A. Winslow, B.Sc., M.S., A.M.: PUBLIC HEALTH AND HYGIENE.
Professor of Public Health at Yale University; member, American Public Health Association; Chairman, New York State Commission on Ventilation.

Clinton Rogers Woodruff, A.B., Ph.B., LL.B.: CIVIL SERVICE; MUNICIPAL GOVERNMENT.
Member of the Pennsylvania Bar; Honorary Secretary of National Municipal League; Editor, *National Municipal Review.*

John C. Wright, B.Sc., A.M.: VOCATIONAL EDUCATION.
Director, Federal Board for Vocational Education; member, National Society for Vocational Education, Society of Automotive Engineers.

THE
AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

PART ONE
HISTORICAL

DIVISION I
AMERICAN POLITICAL HISTORY

THE UNITED STATES

By John A. Krout
Professor at Columbia University

A POLITICAL SURVEY

Elements of Policy.—A survey of the political history of the United States during 1925 indicates that the nation has been still struggling with important problems of readjustment caused by its participation in the World War. In Administration circles the "return to normalcy" policy, originally voiced by President Harding, remained the central point in the program of President Coolidge and his advisers. It was particularly noticeable in the vigorous campaign for economy, a campaign designed to relieve the taxpayer from the burden of abnormally high taxes and to strengthen business by curtailing wasteful expenditures.

In Congress the more or less fruitless efforts to find a legislative remedy for the ills of the farmer revealed the fact that agriculture was but slowly recovering from the depression following the war years. In the interest of what seemed to be a sound financial readjustment between nations the Government turned its attention to the settlement of the debts owed to us by European countries. National defense on land and sea received a more careful consideration than was normally the case before our entrance into the war in 1917. Though the American people had apparently decided that, as a nation, they would avoid European complications in the future, there were numerous indications of governmental concern over the ultimate political and economic settlement across the Atlantic.

While the campaign for American entrance into the League of Nations seemed to lose ground, a strong demand in both parties arose for the immediate participation of the United States in the benefits and responsibilities of the World Court. More than six years after the Armistice, then, the nation was still grappling with problems growing out of the greatest war in history. That some of the most perplexing of these questions were slowly being answered will appear in the following pages.

Presidential Election of 1924.—The political situation during 1925 was to a large extent determined by the result of the 1924 elections. The victory of the Republican Party at the polls, while not as overwhelming as in 1920, was rather greater than even its optimistic leaders expected. President Coolidge's popular Republican vote was 15,718,789, nearly fifty-five per cent. of the total vote cast; as Democratic candidate Davis polled 8,378,962; and Senator La Follette, the Progressive leader, received 4,822,319. The outstanding feature of the election was the relative strength of the Democratic and Progressive candidates in the trans-Mississippi west. In twelve states the Democratic vote was less than the La Follette vote, Mr. Davis securing only about 10 per cent. of the total. In certain sections of the country the so-called third party had become temporarily the real party of opposition. However, any theory that the Progressive Party would succeed to the place in American politics occupied by the Democratic Party was clearly challenged by the failure of Senator La Follette to carry the grain-growing states of the northwest, and by the solidity of the southern states in their Democratic allegiance. Lesser parties, which appeared sporadically on the ballots, failed to secure any widespread support. The Workers' Party, which is avowedly Communistic, and the Socialist Labor Party each polled less than 35,000 votes while the National Prohibition Party surpassed them with 48,000. The Commonwealth Land Party, devoted to the Single Tax, secured a negligible vote, less than 3,000.

Congressional Elections of 1924.—A more effective control of Congress was one of the fruits of victory for the Republicans. After the results of the Congressional contests were finally tabulated it appeared that losses had been suffered by both the Democrats and the La Follette Progressives. In the Senate, for example, the new alignment for 1925-
1927 indicated that there would
50 Republicans, 40 Democrats, 5
Follette Republicans and 1 Farme
Laborite. The membership in t
next House included 232 Republica
183 Democrats, 5 La Follette Repu
licans, 3 Farmer-Laborites and 2 S
cialists. For the Democratic Par
this represented a net loss of t
Senators and twenty-four Represe
tatives. The Farmer-Labor Par
lost one Senator in the defeat
Magnus Johnson of Minnesota, b
gained two members in the Hous
The Regular Republicans gained f
teen members in the House and thr
Senators.

From the statistics of the vote f
president and for members of Co
gress it was evident that the Dem
cratic Party had not recovered fro
its overwhelming defeat in 1920, a
that the forces of Progressivism h
not succeeded in uniting their vario
blocs into a compact minority part
Some publicists, indeed, raised t
question of whether the future o
position to the Republican Par
would be a system of blocs rath
than a national party.

**Democrats Taking Account
Stock.**—The serious situation of t
Democratic Party was quickly sens
by national leaders of prominen
who sought some means of heali
the wounds which had resulted fro
the battle between the supporters
Alfred E. Smith of New York a
William G. McAdoo of California
the 1924 nominating convention. T
Chairman of the National Commi
tee, Clem Shaver, of West Virgini
who had managed the Davis ca
paign, was criticized for his failu
to reconcile the hostile element
Certain eastern leaders, who believe
that the party organization shou
be more active between national ca
paigns, joined Franklin D. Roosev
of New York in advocating a gener
conference of party workers, simil
to a national convention, for the pu
pose of discussing ways and mea
of strengthening the party throug
out the country. Mr. Roosevelt's su
gestion received the hearty endors
ment of Senator Walsh of Monta
and Senator Robinson of Arkansa
and was approved by Chairma

Shaver of the National Committee. It was not welcomed, however, by the rank and file throughout the south and west and the proposed conference did not materialize.

Discussion of the reasons for the Democratic defeat even reached the halls of Congress where Senator Bruce of Maryland and Senator Harrison of Mississippi, both Democrats, expressed conflicting opinions. To Senator Bruce the cause of the trouble was the abandonment of the principles of Jefferson and Cleveland. He insisted that the party which had once stood firmly against the encroachment of the national government on the powers of the states was now eagerly surrendering the constitutional rights of the state and local governments to federal bureaus, boards and commissions. Senator Harrison doubted the truth of this diagnosis, but believed that the Democratic Party had erred greatly in forming temporary alliances in western states with the forces of the Progressives. Senator Walsh of Montana challenged the idea that there had been coöperation between Democrats and Progressives in his own state. His view of the situation was far more optimistic than that of the other Senators and he announced that time would remove many of the factors which served to divide the Party. However, to most impartial observers, there seemed to be slight indication that the bitterness of 1924 would disappear in the immediate future.

Progress of Governor Alfred Smith.—During the past year there has been little diminution in the rivalry between Governor Alfred E. Smith and William G. McAdoo for control of the party machinery. From southern and western states came word that "McAdoo for President" clubs had not entirely disappeared; and it was rumored that the supporters of the former Secretary of the Treasury were quietly making plans for the 1928 campaign. At the same time the power and prestige of Governor Smith in the party councils was considerably enhanced. His spectacular triumph in being reelected governor of New York in a year when President Coolidge carried the state by almost 870,000 kept him prominently before the nation. In a long drawn out contest with the Republican legislature over income tax reduction he won a brilliant personal victory by appealing to the people.

July 4, a number of eastern Democrats united in honoring him at the annual celebration of the Tammany Society. Governor Alfred C. Ritchie of Maryland delivered one of the principal addresses in which he referred to Governor Smith's probable future success in reaching the White House. A letter from Governor Silzer of New Jersey expressed the hope that New York's governor would one day be president of the United States.

The Democratic primaries in New York City strengthened Smith's leadership, because he successfully brought forward State Senator James J. Walker as the Tammany candidate against Mayor John F. Hylan. The Mayor was endorsed by the Brooklyn Democratic machine and by the "Hearst interests" in the city, but he failed to win the approval of Tammany, then under the direction of Judge Olvaney.

In September Governor Smith was invited to visit Chicago, where he addressed an enthusiastic gathering of nearly 100,000 Democrats—from Illinois and neighboring states. Many political writers regarded this as an early move toward securing the Democratic nomination for president in 1928. Certainly, it indicated that the organization in Chicago under the leadership of George Brennan favored the Governor's political ambitions.

Attitude of Democratic Leaders.—But the Chicago meeting cannot be taken as an indication of the attitude of Democrats throughout the west and south. In both of these sections there is widespread opposition to any suggestion that Governor Smith is the man to lead the party to a national victory. It is an opposition based on several important considerations. In the first place outside of the eastern states the policies and methods of Tammany Hall are regarded with great misgiving, if not downright disapproval. Combined with this is a religious prejudice—Governor Smith is a Roman Catholic—difficult to estimate, but none the less evident in the rural communities of the middle western and southern states. In addition, the apparent opposition to prohibition in the eastern states rapidly diminishes west of the Appalachians and south of the Mason and Dixon line. Perhaps, more fundamental, however, is the profound distrust with which western Democrats, since the days of the late William Jennings Bryan's first presidential campaign, have regarded eastern leadership in their party. Some who are interested in a workable compromise have suggested that harmony cannot be restored until a leader is found free from all connection with the recent factional fights. They have pointed with some hope to the achievement of Governor Donahey of Ohio, who was re-elected in 1924 by 175,000, though President Coolidge received a plurality of 700,000.

Political Attitude of Labor.—The forces which supported Senator La Follette for president have rapidly disintegrated. His following was composed of group combinations which could not be expected to hold together after the election. One of the most important of these groups was the American Federation of Labor. Its endorsement of the Progressive campaign in 1924 was a distinct break with its previous policy. President Gompers had always insisted that organized labor should refuse to join any political organization, as such, and should direct its political strength toward electing sympathetic public officials. Since the election the American Federation of Labor, under President Green, has returned to its earlier policy. August 2, the Executive Council announced that its course in the future would be strictly non-partisan in matters political. "The launching of third party movements," declared the Council, "has been proved wasted effort and injurious to the desire to elect candidates with favorable records." The Federation in convention assembled endorsed this sentiment with enthusiasm. To what exten this decision will affect the thir party movement in the United State remains to be seen, for the rank an file of the unions have never been inclined to accept the rule of thei leaders in politics.

Whether or not a similar nonpartisan policy will be sanctioned b the four great railroad brotherhood is a matter of conjecture. As th sponsors of the Conference for Progressive Political Action, thes brotherhoods carried much of th financial and administrative burde in the La Follette campaign. In th past they have been much more inclined than the American Federatio of Labor to look favorably on national third party movements; bu during the year they have not attempted to effect a permanent political organization. The Conference a Chicago on February 22, called t consider plans for a permanent thir party organization, indicated that th railroad brotherhoods were not read to commit themselves to a definit policy. After the representatives o the sixteen labor groups had le the convention, the remainder of th Conference for Progressive Politica Action and the Socialists held a second meeting at which it was decide to proceed with plans for an independent party. The national organizatio was to be based upon state group sympathetic with progressive policies. The Socialists under the leadership of Morris Hillquit oppose the plan on the ground that it woul exclude various organizations o laboring men from actual affiliatio with the movement. The Socialis protest, however, was voted down an the conference adjourned. As a result, the third party movement ha lost the official support of organize labor and was not assured that th Socialists would continue their polic of coöperation.

Political Status of the Socialists—In their desire for an immediat victory the Socialists cast in thei lot with the La Follette Progressive in 1924. It was obviously a temporary and unnatural alliance, for th disciples of Karl Marx could scarcel reconcile their doctrines with the re forming zeal of Robert M. La Follette. Since the election it has become evident that many Socialists regret the action of last year and regard further alliance with a third party as distinctly unwise. As a political group, however, the Socialist Party is far from a united organization. Factional fights, reflecting in part the split in the Socialist movement in Russia, have resulted in dissension within the ranks which threatens to nullify all previous achievements. The extremists, of course, have abandoned the Marxian doctrinaires for the radical Communist organization, the Workers' Party. It was this group that wrecked the Farmer-Labor Party in 1923 and attempted to control the St. Paul convention in 1924. Failing to secure support from agrarian and labor organizations it was left isolated and was compelled to conduct a separate presidential campaign.

Since the election two factions within the Socialist ranks have staged a struggle for control, each claiming to represent the Third International. The question at issue has been whether or not the Workers' Party should continue its efforts to form alliances with other political movements. A referendum vote was taken which sustained the group opposed to federating with other third party organizations. This result, however, was overruled by the instructions from Moscow which advised the party to coöperate with farmers and wage-earners whenever possible. Numerically the Workers' Party, whatever its policy, is insignificant. It has claimed as high as 100,000 members, but no credible figures have shown more than 25,000. An American delegate to Moscow in April, 1925, reported that the Workers' Party had only "20,000 members, of which 2,000 are in the English-speaking organizations." There is nothing to indicate that the Communist movement in the United States is growing.

Republican Political Policies.—From the standpoint of the Republican Party the most important elements in the Progressive movement were the agrarian groups of the northwestern states. Such support as Senator La Follette received in the northern section of the Mississippi Valley came largely from voters who were normally classed as Republicans. The organization leaders bent all their efforts toward winning back the discontented farmers as quickly as possible. Their task was made considerably easier by reason of President Coolidge's program of economy and his suggestions in regard to farm relief, which found favor in many of the regions controlled by the "insurgents." Furthermore the situation was profoundly affected by the death of Senator Robert Marion La Follette on June 18, and that of Senator Edwin F. Ladd four days later. The Progressive movement thus lost two of its ablest leaders; and there seemed to be no other leaders ready to take their place. Senator Norris of Nebraska declined to assume responsibility for the political policies of the "insurgents." The prospects of the regular Republicans for the preservation of their power visibly brightened. It seemed as if they might even break the grip of the Progressives on the state of Wisconsin.

Wisconsin Senatorial Election.—Therefore, it was with considerable hope of success that the Republican organization decided to try to elect its candidate to the United States Senate to fill the vacancy caused by the death of Senator La Follette. Senator Lenroot of Wisconsin strongly urged the contest and Chairman Butler of the Republican National Committee came to the assistance of the state forces. At the primary election Roy Wilcox was the organization candidate while Robert M. La Follette, Jr., the late Senator's son, represented the progressive wing of the party. Factional discord in the organization forces, complicated by mismanagement of the Wilcox campaign, was partly responsible for the decisive victory of the progressive group. Robert M. La Follette, Jr., thus became the Republican candidate. When the result was known the National Committee refused to interfere further in the contest. Edward F. Dithmar, former Lieutenant-Governor of the State, ran as an Independent, having assurances of support from Senator Lenroot and other prominent Republicans. Though he attempted to win votes by endorsing the Coolidge administration he was unable to unite the forces opposed to Progressivism. The election, on September 29, resulted in a victory for young La Follette, who was elected by a plurality of 140,000.

Suggestion of Coolidge for 1928.—In general the Republican Party felt confident of its power during the year. Prospects of success in the Congressional elections of 1926 were exceedingly good. On July 5 David W. Mulvane, national committeeman from Kansas, issued a statement in which he declared that President Coolidge should succeed himself. Since the statement was released to the press after its author had conferred with Everett Sanders, secretary to the President, it was assumed that the presidential campaign of 1928 had been formally opened. The President, Mr. Mulvane asserted, was serving his first term at the hands of the electorate, and the question of a third term was not relevant. In any event the third-term tradition was worthless when the people wanted a man to represent them. There were others who agreed with Mulvane regarding the next nominee of the Republican Party, for most political observers felt that President Coolidge was genuinely popular throughout the country and that his leadership and his policies were great assets to his party.

Ku Klux Klan in Politics.—The political influence of the Ku Klux Klan was the subject of considerable conjecture during the year, but no evidence of great value could be obtained because of the secret methods of the organization. In the state and local elections on November 3 there were isolated results which indicated that in some communities the Klan was fighting more in the open than heretofore. The mayoralty campaign in Detroit became a struggle between Klan and anti-Klan forces during the closing weeks and the election of John W. Smith as mayor was regarded as a defeat for those who accepted the principles of the K Klux organization. Four of the fiv candidates for the city council, however, were elected apparently wit the support of the Klan. In Louisville, Kentucky, the contest for mayo was abruptly terminated by the withdrawal of the Democratic candidat shortly before the election, after h had admitted that at one time he wa a member of the Klan. Many newspaper correspondents who followe the election results carefully were inclined to believe that the vote in November, 1925, in general revealed distinct decline in religious and racia prejudice, but there were others wh felt that the politicians would soo be dealing with more or less definite groups willing to support organizations similar to the Ku Klu Klan.

New Jersey Election.—In tw states the result of the Novembe 1925, balloting was anything but encouraging to the Republicans. Afte a bitter fight A. Harry Moore of Jersey City was elected governor of Ne Jersey on the Democratic ticke Though he had the united suppor of the Democratic machine and popular issue in his "wet" program his victory was partly owing to th dissensions within the Republica organization. Some attempt had bee made to interest President Coolidg in the campaign, but he refused t interfere on behalf of his party. I New York State the Republican Stat Committee undertook a campaig against several proposed amendment to the state constitution, all of whic had been passed by a legislature i which the Republicans had a workin majority.

New York Election.—Governo Smith entered upon a speaking tou in support of the amendments an profited greatly from the inability the Republican leaders to agree o a definite policy of opposition. Th fact that all four amendments wer ratified by the voters seemed to ind cate that the Republican organizatio was suffering from internal dissensions. For Governor Smith it wa one part of a double victory. On th same day the Tammany candidate fo mayor of New York, James J

Walker, was elected by a plurality exceeding 400,000. Inasmuch as the nomination of Mr. Walker had been dictated by Governor Smith, the result of the election was interpreted as a victory for the Governor. There was widespread speculation in political circles when Mayor-elect Walker announced that he would take a short vacation in the South. Some purported to see in his visit to the southern states an attempt to win favor for Tammany Hall and its leaders among southern Democrats. This idea seemed to be somewhat confirmed by the cordial reception which Mr. Walker received in Atlanta, where a number of Georgia politicians assembled to honor him. The year closed with both parties looking forward hopefully to the Congressional elections of 1926.

PERIOD FROM DECEMBER, 1924, TO MARCH, 1925

By John A. Krout
Professor at Columbia University

Lame Ducks.—The second session of the sixty-eighth Congress which opened in December, 1924, was destined to be a duplication of many previous short sessions. A number of the members of both the Senate and House of Representatives had sought reëlection in 1924 and failed. Under our clumsy method of electing members long in advance of their terms of office, however, the final session of every Congress is held after the country has chosen the members who are to take their seats in the new Congress. As a result most final sessions are not productive of legislation in strict accord with the latest expression of the preferences of the electorate. There is also a tendency on the part of the legislator to mark time.

Senate Changes.—In the Senate an important change in membership occurred. Senator Henry Cabot Lodge of Massachusetts, who had represented his state for thirty-one years, died on November 9, and in accordance with the law of Massachusetts Governor Cox appointed and selected to fill the vacancy till 1927 William M. Butler. Since Mr. Butler was a personal friend of President Coolidge and had managed the Republican presidential campaign, he became the President's confidant and spokesman in the Senate. His appointment established much closer relations between the White House and the Capitol which were mutually beneficial.

The important post of Republican leader in the Senate, so long held by Senator Lodge, was assigned to Senator Charles Curtis, who had seen considerable service in the Republican ranks. The chairmanship of the Committee on Foreign Relations, regarded by some as the most coveted position in the Senate, fell to Senator Borah of Idaho under the seniority rule. This change was of considerable consequence in its bearing upon the relations between the Committee and the State Department in respect of foreign relations.

On December 16 Professor Hiram Bingham, formerly a member of the faculty at Yale, was elected to the Senate to succeed the late Senator Brandegee of Connecticut. At the time of his election Professor Bingham was governor-elect of the state. He was inaugurated on January 7, filled the office of governor for twenty-four hours and then went to Washington to take his seat in the Senate.

President's Message.—On the second day of the session President Coolidge sent to the two houses a preliminary message devoted to the subject of economy and the reduction of taxation. On the basis of the Treasury figures regarding the year's income and expenditure, he predicted a surplus of nearly $68,000,000. His annual message, sent to Congress in writing, was couched in phrases consistent with his program of economy. He recommended that wherever possible appropriations be decreased and the tax burden be diminished. He called attention to the fact that during the previous session no definite action had been taken in regard to American participation in the Permanent Court of International Justice, and recorded his opinion, in the matter of debts owed to the United States by foreign governments, that it was "for the best welfare of the world that they should be liquidated and paid as fast as possible." Special reference was made to the President's interest in the negro race and his hope that they would be freed from all forms of oppression and coercion. Concerning transportation the President spoke strongly in favor of consolidation through the grouping of the smaller railroads into a few large systems. He recommended relief for the farmer, but felt that action should await the report from the agricultural commission which was then investigating the situation. In a previous message he had urged the sale of Muscle Shoals, but he evaded the issue this time by advising that if no proper offer were made for lease or purchase, "the development should continue and the plant should be dedicated primarily to the production of materials for the fertilization of the soil."

Muscle Shoals.—Two of the points stressed by the President in his message occasioned considerable controversy in the House and Senate. Proposals in regard to Muscle Shoals were part of the business which remained unfinished at the close of the previous session. The measure championed by Senator Underwood and known as the Underwood Bill, which provided for leasing the waterpower rights to a private corporation, had the approval of President Coolidge. In fact, certain newspapers published stories charging that Senator Underwood had resorted to secret communications with the White House in the attempt to have the bill adopted, but the Senate by unanimous vote on December 19 held that the criticisms were unwarranted. Opposition to the Underwood proposition rallied to the support of a bill introduced by Senator Norris of Nebraska for the development of power at Muscle Shoals through the management of the plant by federal authorities. The issue had apparently become one of the proper
methods of regulating and operatin
a public utility.

No Legislation.—During the pr
longed debate a fundamental diffe
ence in purpose between the suppor
ers of the two measures became mo
evident. The friends of the Norr
bill believed that the power proje
should be carried forward by the go
ernment in order to manufacture n
trates both for fertilization and fo
war materials. Their opponents we
particularly interested in Musc
Shoals because of the possibility o
furnishing electric power to indu
trial establishments within a radiu
of several hundred miles. After pra
tically every phase of the matter ha
been debated the Senate on Januar
14 adopted the Underwood bill by
vote of 52 to 30. Two weeks later th
House passed the bill in an amende
form by 181 votes to 41. The confe
ence committee attempted to reconci
differences and announced that it ha
reached an agreement on February
Although almost a month of the se
sion still remained and the Presider
undoubtedly desired action, a dete
mined minority prevented a final d
cision and the bill remained with th
unfinished business when Congress ad
journed.

Agricultural Proposals.—The pend
ing legislation for agricultural r
lief occupied much of the time of bot
houses and was closely watched b
President Coolidge. During the pr
vious session three proposals ha
failed to win the support of the legi
lators. The Norbeck-Burtness Bill t
loan fifty-eight million dollars t
spring-wheat farmers to enable the
to abandon the one-crop system
though it had support from the Whit
House, was defeated in the Senat
Likewise the McNary-Haugen Bil
which proposed the creation of a far
export corporation capitalized at tw
hundred million dollars to mark
surplus wheat overseas, failed to pa
the House. The measure was spo
sored by the National Live Stock Pr
ducers' Association, the America
Wheat Growers' Association and th
National Milk Producers' Associatio
The Norris-Sinclair Bill to provid
for the purchase and sale of agricu
tural products through government

agencies was reported to the Senate but never considered.

Agricultural Commission. — With such an embarrassment of riches in the form of legislative remedies many Congressmen were waiting for the report of the unofficial Agricultural Commission which had been studying the situation. On January 27, at one of the famous breakfast conferences, President Coolidge went over the question with members of the agricultural committees of both houses, and a day later sent to Congress with his endorsement a lengthy report drawn up by the agricultural commission. The main features of the report, remarkably similar to recommendations previously made by the President, proposed that new facilities be provided for borrowing money from the government through a new farm credit corporation and that a Federal Coöperative Marketing Board, consisting of the Secretary of Agriculture, Secretary of Commerce and three others chosen by agricultural organizations, be created. The commission also advised the legalization of farmers' associations and pools for the sale of their products, and the establishment of coöperative market organizations and clearing houses. In spite of the fact that this definite program had the support of the Administration, Congress failed to take action in the closing days of the session.

Unfinished Business.—Besides the legislation just discussed several other measures were lost in the tumult and confusion of an expiring Congress. The bills which seemed likely to pass, but finally remained in the unfinished business were a bill to permit national banks to establish branches, a general pension bill to bring a degree of order into the existing pension system, the much needed bill to codify the federal statutes and a bill for retiring government employees.

Salary Act. — More successful was the proposal to increase the salaries of members of Congress, which had been changed only once since 1873. As finally passed, the act raised the salaries of Vice-President, the Speaker of the House and members of the cabinet from $12,000 to $15,000, and of members of Congress from $7,500 to $10,000. The measure was passed in both houses without the formality of a roll-call and considerable criticism of the action was voiced in the press. Certain Democratic editors insisted that the President would have to veto the bill as in conflict with his economy program, but this was not the decision at the White House.

The Postal Bill, carrying an increase in the salary scale for postal employees and an increase in postal rates, was signed by President Coolidge just before his first term expired.

Status of Third Party Men.—During the session there had been much talk concerning the action which the organization would take to punish those nominal Republicans who supported the La Follette and Wheeler ticket in 1924. No invitations to the caucus of Republican members of the House were sent to thirteen representatives who were elected in 1922 as Republicans. The list of those who had supported the third party included Sinclair of North Dakota, Keller of Minnesota, La Guardia of New York and Cooper, Voight, Nelson, Schacht, Lampert, Beck, Browne, Schneider, Frear and Peavey from Wisconsin. It was understood that Representative Longworth of Ohio spoke with the approval of President Coolidge when he said: "The insurgents have read themselves out of the party." But the "insurgents" registered a vigorous protest against the action and through Frear of Wisconsin, their spokesman, insisted that they belonged within the Republican ranks. Representative La Guardia of New York went so far as to give a warning to the party leaders that his influence might be needed in his own state.

In the Senate, despite the opposition of Senator Borah, the "regulars" served notice that the "insurgents" would be treated in the apportionment of committee memberships for the sixty-ninth Congress as if they were members of a minor party. In the House the Republicans started a new precedent by holding an advance caucus to nominate their candidate for Speaker in the next Congress. Although the friends of Martin B. Madden of Illinois were active in his behalf, Nicholas Longworth of Ohio, son-in-law of the late President Theodore Roosevelt, was easily nominated by a vote of 160 to 89.

Record of the Congress.—The sixty-eighth Congress expired at noon on March 4, 1925, with a record which left many important matters unsettled. Like many of its predecessors, it passed on to the next Congress a heavy burden of legislative problems. During the two years of its sessions appropriation bills amounting to $7,898,000,000 were passed, and Republican leaders felt that the total had been kept down by effective attempts at economy. As an indication of the work of the legislators the statute books contained 993 additional public and private bills. Most of the legislation of consequence, however, had been enacted during the first session.

EXTRA SESSION OF 1925

By John A. Krout

Professor at Columbia University

Vice President's Début.—In order to secure the ratification of important appointments the President called an extra session of the Senate on March 4. Vice-President Dawes on being inducted as presiding officer of the Senate took advantage of the occasion to deliver an address filled with sharp criticism of the rules and procedure of the body over which he was to preside. His attack was directed chiefly against the leisurely character of senatorial debate, which offered every inducement to the minority to filibuster and prevented a majority from bringing important matters to a final vote.

The public was greatly surprised and interested by the Vice-President's charges, but the Senate was temporarily in an angry mood. There were suggestions that the body should find some means of disciplining its presiding officer, but calmer counsel quickly prevailed. In place of Senator Cummins of Iowa, who retired, Senator Moses of New Hampshire was chosen President of the Senate pro tem.

Cabinet Nominations.—Most of the two-weeks' session was taken up with a controversy over the appointment of an Attorney-General. On March 5 President Coolidge sent in the renomination of Postmaster-General Harry S. New for the four-year term. This was necessary because the present law fixes the term of the Postmaster-General at four years. The appointment was immediately confirmed.

Warren Episode.—The same ready compliance of the Senate was not evident when the President nominated Charles Beecher Warren of Michigan to be Attorney-General. When the nomination came up for confirmation in the Senate on March 10 there was a tie vote, 40 to 40. Had Vice-President Dawes been presiding at the time, he could have broken the deadlock by his vote in support of the President's appointment. In his absence the Administration leaders attempted to break the tie, whereupon Senator Overman of North Carolina, the only Democrat who had voted for confirmation, changed his vote and the Senate refused by 41 to 39 to reconsider its action. President Coolidge decided to force the issue and resubmitted Mr. Warren's name, but the Senate stood firm and rejected it again on March 16 by a vote of 46 to 40.

From the viewpoint of the White House matters had become serious. Not since President Johnson's bitter and disastrous war with Congress between 1866 and 1868 had the nomination of a cabinet officer been rejected. For more than fifty years the right of the President to name his cabinet advisers without Senatorial interference had been a precedent so uniformly respected as to have almost the effect of a part of the constitutional system.

To President Coolidge the rejection of his appointment meant far more than the failure to have Mr. Warren in his cabinet. But the Senate insisted that it enjoyed a right, specifically granted in the Constitution, to scrutinize even cabinet appointments. In the present instance it saw fit to object to Mr. Warren's activities while forming the so-called Sugar Trust. When the President announced his intention of making a recess appointment, it looked as if the country was in for a long drawn out battle between presidential prerogative and senatorial power.

Appointment of Sargent.—March 17, however, the name of John G. Sargent of Vermont was sent in and unanimously confirmed as Attorney-General. Though the constitutional issue had been evaded, it had not been settled. For the time being the President had given ground before the attack of the Senate. It seemed more than likely that the question would be raised in the new Congress.

Rules of the Senate.—Following the adjournment of the special session of the Senate, Vice-President Dawes announced that he would attempt to force a modification of Senate rules by presenting the case to the country. He spoke frequently during the recess in all parts of the nation, urging the voters to bring pressure to bear on their representatives in the Senate. His chief argument against the existing rules was that a majority could not close the debate on any bill and bring it to a vote. He also emphasized the fact that in the case of all measures considered under unanimous consent one member could prevent the enactment of legislation. The Vice-President's appeal was favorably received in many localities, but it aroused no great enthusiasm on the part of the electorate. Its effect upon the members of the Senate was even less favorable to an amending of the rules, for many Senators resented Mr. Dawes' efforts to bring political pressure to bear upon them.

Controversy Over Cloture.—The opponents of the idea of majority cloture came from several groups. In the first place, Southern senators regarded the proposed changes as hostile to their interests because they had learned to rely upon unlimited debate in the Senate to defeat legislation similar to the Force bill and the anti-lynching bills. Another group in favor of the *status quo* was the progressive element, which found that threats of a filibuster were effective in securing concessions from the majority party. Finally, a large number of regular Republicans were convinced that the slow deliberation of the Senate had saved the country from many legislative fads that might otherwise have become laws.

These enemies of the Dawes proposals admitted that the privileges of unlimited debate were often abused, but they denied that the remedy lay in conferring upon a majority the right to close all debate. They pointed out that in 1917 the Senate had adopted a cloture rule which gave two-thirds of the members the right to close debate after proper notice. This rule, they asserted, had seldom been used, but it was always available in the event of a prolonged filibuster. As Congress convened in December, it seemed evident that any change in the Senate rules would be long postponed.

FIRST SESSION OF 69TH CONGRESS

By John A. Krout
Professor at Columbia University

Line-up of the Senate.—As the time drew near for the opening of the first regular session of the 69th Congress, December, 1925, the Administration leaders began to appraise the political line-up in the House and Senate. The task of Senator Curtis of Kansas, Republican floor leader in the Senate, was not as easy as it appeared. On paper the Republicans in the upper house numbered fifty-six, seven more than the forty-nine votes required for a majority. Several of these senators, however, were nominal rather than regular supporters of the party's policies. Senator Curtis could scarcely count on consistent support for Administration measures from Senators Borah of Idaho, Couzens of Michigan, Brookhart of Iowa, Frazier and Nye of North Dakota, La Follette of Wisconsin, and Norris of Nebraska, not to mention Norbeck and McMaster of South Dakota.

With such an array of possible "independents" it was discreet for the Administration Republicans to adopt a policy of conciliation. Senators Brookhart and Frazier had been excluded from the party caucus at the last session and were, therefore, regarded as definitely rejected. In the case of Robert M. La Follette, Jr., who had been elected to succeed his father, and of Gerald P. Nye, who had been appointed by Governor Sorlie to succeed the late Senator Ladd, the Administration leaders were inclined to be lenient. There was some doubt as to the right of Mr. Nye to take his seat by appointment of the governor, because North Dakota, following the adoption of the constitutional amendment providing for the direct election of United States Senators, failed to enact a law empowering the governor to fill a senatorial vacancy by appointment. Accordingly, when the Senate convened, Mr. Nye's credentials were immediately referred to the Committee on Privileges and Elections.

Young La Follette Issue.—Whether or not Senator La Follette should be regarded as a Republican, and given committee assignments as a member of the majority party, caused considerable controversy. The Committee on Committees was at first deadlocked over the matter. Of the Republicans, Senators Smoot of Utah, Watson of Indiana, Ernst of Kentucky, and Cameron of Arizona believed that La Follette should be denied committee assignments, while Senators Moses of New Hampshire, Wadsworth of New York, Reed of Pennsylvania, and McNary of Oregon favored a more lenient policy. Though Senator La Follette announced that his course in the Senate would be determined by the principles and policies formerly championed by his father, the Republica organization finally decided to assig him as a Republican to the Senat committees. There was no questio of regularity in the case of the othe new members of the Senate who ha been chosen since the special sessio in March. Senator Robinson of Indiana took the place of the late Senator Ralston, and Senator William of Missouri succeeded the late Senator Spencer.

House Insurgents.—In handling th insurgents the majority party in th House of Representatives was not inclined to be conciliatory. Representative Longworth, the Republican nominee for Speaker, announced tha every Republican who desired regula committee assignments would have to pass two tests. These tests were first, his willingness to vote for the caucus nominee for Speaker; and second, his willingness to rescind the rule discharging a committee of custody of a bill by a vote of 150 members, and to substitute the old rule requiring a majority. When the House organized on December 17, Mr Longworth was easily elected Speaker defeating the Democratic candidate Finis J. Garrett of Tennessee, by a vote of 229 to 173. But thirteen insurgents and independents supported Henry A. Cooper of Wisconsin. The same group resisted the House majority when it voted to require 218 members to force a committee to report a bill for consideration and debate. As a result of their refusal to meet the tests of Republicanism, the insurgents were disciplined by the Committee on Committees. A dozen nominal Republicans, who had supported Representative Cooper, were removed from their places on important committees and placed at the foot of the Republican list on minor committees. The Administration forces were thus prepared to enact their legislative program with little opposition from the Democrats or from dissenters within their own ranks. Speaker Longworth had given conclusive evidence of his control over his party in the House.

President's Annual Message.—On December 8 President Coolidge sent his written message to Congress. It contained no startling recommendations, for the President reiterated and summarized many of his previous statements to the press. The more important domestic issues discussed in the message included taxation, the coal strike, the merchant marine, air defense and the disposal of Muscle Shoals. Congress was urged to accept the measure drafted by the House Committee on Ways and Means as an admirable revenue law for 1926. In the absence of proper legislation the Administration was prevented from interfering in the coal strike. Congress should authorize the President and the Departments of Commerce and Labor to appoint temporary boards empowered to conduct investigations, to encourage arbitration, and in the event of a coal shortage to exercise control over distribution. Development of the merchant marine, according to the message, required centralized executive control in the management of the operating lines and in the sale of surplus ships. It was essential that Congress take action to prevent mismanagement through a division of councils. In connection with air defense the President was glad to forward the report of his special board of investigation, which indicated that no radical change in the organization of the service was necessary. It seemed to the President that the problem of Muscle Shoals had been greatly overemphasized. He advised Congress to return the property to private management that it might be developed for the production of nitrates and incidentally for power purposes.

Foreign Relations in the Message.—In the field of foreign relations the message stressed the desirability of further international disarmament, but contained a word of caution against a too great willingness to participate in European conferences for that purpose. The foreign-debt settlements, negotiated during the year by the War Debt Commission, were hopeful signs and worthy of immediate ratification. Again, a plea for the World Court was made, on the ground that it was an admirable instrumentality for the realization of world peace.

The proposed reservations under which the United States should ratify the statute creating the tribunal were definitely stated. They included: first, the assumption of no obligation under the Covenant of the League of Nations; second, equal participation with European nations in the election of judges; third, Congressional determination of the American share of expenses; fourth, consent of the United States to any amendment of the statute creating the Court; and fifth, freedom from obligation to accept advisory opinions of the Court given without American consent. On these terms President Coolidge based his plea that the United States join the nations already supporting the Permanent Court of International Justice.

Budget.—The President's annual message was followed by his budget recommendations. He declared that the outlook for the fiscal year 1926-1927 was exceedingly favorable, since ordinary receipts were estimated at $3,824,530,203 and expenditures at $3,494,222,308, which would mean a surplus of more than $330,307,890. Of special significance was his statement that, while the efforts for economy would continue, the minimum cost of running the government had been reached, and the normal expansion of a growing nation would call for added expenditures from year to year. The President announced that the public debt of the nation had been reduced since 1919 by $6,080,507,760, its total on June 30, 1925, being $20,596,701,648.

New Tax Bill.—As soon as the House of Representatives completed the work of organization, Chairman Green of the Ways and Means Committee, introduced the new revenue bill. It had the support of every member of the committee which drafted it, except Representative Rainey of Illinois and Representative Hull of Tennessee, both Democrats. Representative Garner of Texas, ranking Democrat on the Ways and Means Committee, had agreed that the measure should be regarded as bi-partisan. The new bill differed from the existing law in several important particulars. The maximum surtax on incomes was reduced from 40 to 20 per cent. on incomes above $150,000. The schedule of normal rates was also scaled down, starting with 1½ per cent. on the first $4,000 of income, 3 per cent. on the next $4,000, and 5 per cent. on the remainder. Personal exemptions were increased from $1,000 to $1,500 for a single person and from $2,500 to $3,500 for the head of a family. The clause in the revenue act of 1925, providing for publicity of income tax returns, was omitted. In the sections dealing with estate taxes the maximum rate of surtax was reduced from 40 to 20 per cent., and a provision was inserted allowing credit for as much as 80 per cent. on the federal tax because of payment of an estate tax to the state. The gift tax, originally designed to prevent evasion of the estate tax, was eliminated. The tax on the automotive industry was removed with the exception of a 3 per cent. levy against passenger cars, which represented a reduction from 5 per cent. The entertainment and theater taxes were retained with the exception of the elimination of the tax on "legitimate drama." Great reductions were made in the rates on tobacco, cigars and alcohol, and most of the other sales taxes were dropped. In order to expedite appeals of taxpayers a Board of Tax Appeals was created with sixteen members appointed for life.

The Tax Bill Rushed.—The speed with which the House handled the revenue measure was phenomenal. Five days were allowed for general debate and then the various provisions were considered under a rule limiting speeches to five minutes. Comparatively little opposition to the measure developed, most of the Democrats uniting with the Republicans to pass the sections of the bill as they had come from the committee. Delegations from ten states signed a protest to the President and Congress against the estate-tax provisions which, they said, forced every state to exact an estate tax patterned after the federal act in order to keep within the state at least 80 per cent. of the total levied by the federal government. But the lobbying efforts of the states, which imposed no inheritance tax, failed to win a majority the legislators, and the House a proved the 20 per cent. estate tax a 2 to 1 vote.

Amendments.—Equally futile we the attempts of Representative L Guardia of New York to keep t publicity of income tax returns, a of Representative Frear of Wisco sin to continue the gift tax with rat equal to the inheritance levies. Mr Mary Norton of New Jersey also su fered defeat when she tried to mak the income tax exemptions $3,000 fo a single person and $5,000 for a family head. In only two important pa ticulars did the House agree to amen the original proposals. On the fin day of consideration it was agree that the tax on commercial alcoh should be increased. The Republican avoided a sharp fight against th Board of Tax Appeals by striking ou the provision, giving members a lif tenure of office, which was oppose by Democratic leaders, and by fixin the terms at from 4 to 14 years. O December 18, after nine days of debate, the House of Representative passed the amended revenue bill by vote of 390 to 25. It was estimate that the measure would reduce taxe by $325,736,000. The Senate Committee on Finance was scheduled to consider the bill on January 2.

Proposals on Prohibition Legislation.—While the House made unusual progress with the revenue measure, the Senate considered a variet of matters. Senators Edge and Edwards of New Jersey on the secon day of the session introduced measures designed to amend the Volstea Act. Senator Edge proposed that 2.7 beer be legalized and that physician be allowed to write prescriptions calling for more than one pint of liquo per person every ten days. The bill introduced by Senator Edwards provided for the repeal of the Volstea Act and the substitution of an ac legalizing the sale in original packages of beer having 4 per cent. of alcohol by weight. These proposals wer referred to the Judiciary Committee but they furnished the occasion for verbal duel between the "wet" an "dry" forces. Senator Bruce of Maryland, supported by Senators King o

Utah and Edge of New Jersey, charged that prohibitory legislation had been the most efficient incubator of crime in the history of the country. He denounced the existing condition of prohibition enforcement as a disgrace of which the nation should immediately rid itself by abandoning attempts to enforce an "absolutely unenforceable law." The defense of prohibition was presented by Senators Willis of Ohio, Sheppard of Texas, and McKellar of Tennessee.

Borah's Foreign Bills.—Senator Borah, Chairman of the Committee on Foreign Relations, indicated that he was willing to oppose the Administration when he introduced several measures which did not represent the views of President Coolidge. One of the bills provided for the recognition of the Soviet government of Russia by the United States. Another sought to repeal the act of 1920 against the admission of aliens under which Secretary Kellogg had refused to admit Countess Karolyi to this country. The third measure was intended to afford a means through the courts for the restoration of alien property seized by the Alien Property Custodian under his wartime powers.

Debt Settlements.—A storm of opposition arose in the Senate on December 16 when Senator Smoot of Utah, Chairman of the Finance Committee and a member of the War Debt Commission, sought to secure imediate consideration of the debt settlements negotiated during the recess. The Italian settlement, which contained terms more favorable than those granted to other countries, was the center of the attack led by Senators Borah, Johnson, Norris and Reed of Missouri. Senators Smoot and Lenroot defended the debt agreements as representing in each case the maximum that the debtor country could be expected to pay. Senator Reed charged that the Italian agreement and possibly others were nothing but "whitewashed repudiation." Coming as it did on the eve of the day set for the formal debate on the World Court, the spirited opposition to the debt settlements seemed to be an attempt to revive old prejudices hostile to any coöperation with European nations. At the same time a constitutional point was raised in the House of Representatives where it was claimed that the Senate could not take up the debt agreements until after the House had acted. Because of this technicality, there was little likelihood of an early ratification of the financial settlements.

World Court Proposals.—According to the resolution adopted during the special session of the Senate in March, debate on the World Court proposal was scheduled for December 17. On that date Senator Swanson of Virginia, ranking Democrat of the Foreign Relations Committee, spoke in favor of a resolution to ratify the statute creating the tribunal, with the reservation suggested by President Coolidge. He was supported by Senators Lenroot and Walsh, who agreed that the Court was not dependent for its personnel or jurisdiction upon the League of Nations, in spite of the fact that the Assembly and Council of the League were used as administrative instrumentalities. Senator Borah, the leading spokesman for the World Court opponents, reiterated his previous objections to the immediate adherence of the United States to the Court, urging the necessity for a codification of international law outlawing war. The course of the discussion indicated that fear of the League of Nations still remained the greatest obstacle in the way of American participation with European nations in the work of the Permanent Court of International Justice.

EVENTS IN THE DEPARTMENTS

By John A. Krout

Professor at Columbia University

Besides the formulation of the war-debt agreements and the campaign for better enforcement of national prohibition, which are discussed in other sections of this article, the chief developments in the Treasury Department related to the program of tax reduction. On May 3 statistics were published by the Department showing that tax receipts for the first nine months of the fiscal year 1925 amounted to more than $1,928,982,000, only $217,821,000 less than for the same period in 1924. The figures indicated that further tax reduction would be possible and Secretary Mellon cautiously outlined his ideas of revision. He urged the abolition of the federal inheritance tax as one of the first steps in a constructive program. He was also in favor of as great a reduction as possible in the rates of surtaxes applied to incomes. When the Treasury report for the fiscal year 1924-1925 showed a surplus of $250,000,000, ardent advocates of tax reduction wanted the amount applied in determining the rates for the new revenue bill. Secretary Mellon, however, indicated that the surplus had already been used to decrease the amount of the debt, which had been reduced by $735,000,000 during the year.

The actual work of formulating the provisions of the new internal revenue bill was begun at Washington on October 19. Public hearings before the Ways and Means Committee of the House of Representatives continued until November 3. Secretary Mellon presented the proposals of the Treasury Department designed to effect further relief for the tax-payers of the nation. The principal points in his recommendations included the repeal of the federal estate tax, the tax on automobile trucks, tires and accessories, and the tax on gifts. The effect of tax-exempt securities on federal taxation was clearly stated and a constitutional amendment to abolish such exemption was strongly urged. Secretary Mellon also advised Congress to repeal the publicity section of the existing revenue law on the ground that it was "utterly useless from a Treasury standpoint." In the matter of taxes on incomes the Secretary was explicit in his suggestions of new rates. Instead of the present surtax of 40 per cent. on incomes of $200,000 or more, he advocated a maximum surtax of 20 p cent. on incomes over $150,000. H schedule of normal rates provided f 1½ per cent. instead of 2 per cent. incomes up to $4,000, 3 per cent. i stead of 4 per cent. on incomes fro $4,000 to $8,000, and 5 per cent. i stead of 6 per cent. on incomes ov $8,000. To the suggestion that i comes of $5,000 or less should exempt from federal taxation, Secr tary Mellon was distinctly oppose He declared that such exemptio would deprive the government $167,000,000 of revenue and "wou be wrong in policy and ineffective decreasing the cost of collection or eliminating delay and congestion "As a matter of policy," he sai "nothing so brings home to a man t feeling that he personally has an i terest in seeing that Government re enues are not squandered, but inte ligently expended, as the fact that l contributes individually a dire tax, no matter how small to h Government." These views were co siderably modified by the Committe on Ways and Means in the revenu bill submitted to Congress in D cember.

Department of Interior.—The A ministration's program of tax redu tion was made possible, in large par by the saving in administration ex penses of the several executive d partments. In the Department of th Interior, for example, the decrease i the cost of administration for the tw year period from July 1, 1923, t June 30, 1925, amounted to $82.635 930. During the past year the var ous bureaus in the department oper ated with 2,013 fewer permanent em ployees than in 1923, with an aver age annual wage saving of more tha $3,700,000. All of the bureaus wer reorganized by a corps of experts in terested in securing maximum effi ciency and economy. The force in th General Land Office was considerabl reduced, the local land offices wer consolidated, and a dozen surveyors general were retired from the publi service. In addition, the Bureau o Mines, the Mineral Resources Divi sion of the Geological Survey, as wel as the Patent Office, were transferre to the Department of Commerce du ing the fiscal year 1925 by executive order.

Secretary Work manifested particular interest in the problem of oil conservation and the changing policy of the government toward reclamation projects. On December 18, 1924, President Coolidge, at the suggestion of the Secretary of the Interior, appointed a Federal Oil Conservation Board, composed of the Secretaries of War, Interior, Agriculture and Commerce, to investigate the oil resources of the country. It was possible for the Board to secure the coöperation of a committee of experts from the American Petroleum Institute. After an exhaustive survey of the situation was made the committee submitted a detailed report on August 26 which contained estimates of the petroleum reserves readily available. According to the committee's statistics, the crude oil recoverable by present methods would provide 5,300,000,000 barrels, and there would then remain 26,000,000,000 barrels to be recovered by improved processes. An additional source of supply existed in the 4,000,000 acres of oil shale in the public domain, from which possibly 60,000,000,000 barrels could be extracted, if prices warranted the higher cost of its development. The Interior Department announced that up to June 30 there were 422 outstanding leases on oil and gas lands made under authority granted by the general leasing law of 1920.

Secretary Work, in his annual report and public utterances, indicated that he was primarily interested in re-shaping the governmental policy of reclamation. Though a representative of that section of the country which generally urges large appropriations for reclamation projects, he seriously questioned the advisability of carrying forward certain irrigation works in regions where the land was not sufficiently productive to attract qualified settlers. He strongly recommended that the country use the vast areas of arable lands it now has before pouring millions of dollars into watering dry places. In this policy he believed that he had the support of many in the agrarian sections of the trans-Mississippi west. "There is a widespread opposition," he said, "to the opening up, by the Government of additional acres of agricultural land at this time. Charges are made that overproduction of agricultural products will be increased and present prices reduced. This opposition is not confined to the middle states which fear competition from the virile west, but is voiced also by farm organizations in irrigated districts, which protest against local competition from increased acreage. . . . It must be shown that new projects will not entail a loss to the reclamation fund, otherwise farmers outside of irrigation projects will have to compete with subsidised agriculture."

Furthermore, Secretary Work protested against a system which made it extremely difficult to collect from the water-users the sums owing to the government. It cost $2,107,000 to operate and maintain the irrigation works during 1925 and of this sum $959,744 remained unpaid at the end of the fiscal year. The uncollected charges for five years were $8,500,000.

Department of Agriculture.—While Secretary Work was dealing with unwise reclamation projects, the Department of Agriculture was studying the plight of the farmers in the great grain-producing states. Although Secretary Jardine recognized the farmer's difficulty in marketing surplus crops at a price above the cost of production, he agreed with President Coolidge in resisting any remedy resembling a subsidy to agriculture. His solution of the problem involved nothing more drastic than an increase in intensive, scientific farming and creation of coöperative farmers' associations. In fact, the Department of Agriculture was inclined to believe that the agricultural situation was improving, since the farmers had received a gross income of $12,136,000,000 for the year ended June 30. This was the largest return since 1921 and represented an increase of 7.5 per cent. over the previous year. A conference of farm organizations at Washington under the auspices of the Department of Agriculture formulated a measure for the establishment within the Department of a Division of Coöperative Marketing. The new bureau, as announced by Secretary Jardine on October 31, was not to have powers of regulation, but was limited to expert advice. The bill evidently foreshadowed President Coolidge's own policy.

Secretary Jardine ordered an investigation into the wide fluctuations in the quotations of wheat which occurred during March. As a result of the probe, the Chicago Board of Trade was instructed to use administrative devices to prevent future manipulations. On September 14 the Department of Agriculture approved the merger of the Armour and Morris packing companies which had been effected in 1922. Though there had been opposition to the merger on the part of the government, Secretary Jardine ruled that the amalgamation did not result in price-fixing, monopoly, or unreasonable restraint of trade within the meaning of the Clayton Anti-Trust Law or the Packers Stockyard Act. Arguments of the counsel for Armour & Co. convinced the Secretary that the merger had effected a saving and that the new company controlled less than 25 per cent. of the packing business of the nation.

Department of Commerce.—Secretary of Commerce Hoover was frequently called upon to serve on committees or administrative commissions dealing with problems outside the regular routine of his department. As a member of the World War Debt Commission he served with Secretaries Mellon and Kellogg; in the work of the Federal Oil Conservation Commission he was assisted by Secretaries Weeks, Work and Jardine. The chief problems before the Secretary of Commerce, however, were those dealing with the development of commercial aviation, the regulation of radio broadcasting stations, and the curbing of foreign monopolistic control of raw materials. In coöperation with the American Engineering Council the Department of Commerce organized the Hoover Committee on Civil Aviation, which began its investigation of the commercial aircraft situation in June. Two months later Secretary Hoover announced that he was convinced of the desirability of a Bureau of Air Navigation to be placed under the jurisdiction of the Department of Commerce and given power to create a government inspection service for commercial airplanes. On November 5 the Committee on Civil Aviation made public its report, which recommended the enactment by Congress of a civil aëronautic law to be the basis of a definite government program regarding the industrial uses of aircraft. It was hoped that an additional bureau would enable the government to coöperate efficiently with business agencies in pushing forward the aircraft industry. When the fourth National Radio Conference met at Washington on November 9, Secretary Hoover presented the case in favor of federal control of radio communication. Though he believed that the national government should have adequate power to deal with the problem of interference, he desired to leave in the hands of local communities authority to decide who should use broadcasting stations. He believed that this would not result in a division of responsibility detrimental to successful radio transmission. Acting on his suggestions the annual conference drafted a comprehensive outline of desirable congressional legislation. Secretary Hoover announced that no new broadcasting stations would be licensed by the Department of Commerce until Congress had indicated what action it intended to take.

Perhaps the most significant pronouncement bearing upon commercial affairs was Secretary Hoover's warning to European nations against production and price controls of important raw materials which the United States must purchase abroad. He charged that these combinations had been set up either directly by legislation of foreign governments or indirectly by governmental patronage. They affected the production as well as the price of such materials as rubber, silk, nitrates, tin, dyestuffs, quinine and coffee, for which we annually spend four-fifths of a billion dollars. These controls, Mr.

Hoover maintained, were created for the purpose of increasing price levels through limiting production and were most successful where one nation possessed a practical monopoly of the supply of certain raw materials. In discussing the reprisals which the United States might use, he said: "We could resolutely set ourselves to reduce consumption in every article that is so controlled. We could stimulate the use and manufacture of substitutes. We could induce our citizens to go abroad to other regions and establish rival production. We could prohibit the extension of credit to countries where such controls are maintained. We could request the rest of the consuming world to join with us in these campaigns. But this is trade war, and we want to live in trade peace. . . . I am convinced that the sound solution does not lie in any of the alternatives I have outlined; they are all in the nature of last resorts. I believe the solution does lie in the willingness of statesmen throughout the world to recognize the consequences of government-controlled production and price, and to meet the issue in the only way it should be met, that is, by abandonment of all such governmental action."

Department of Labor.—Problems connected with the operation of the Immigration Act of 1924 continued to receive special attention from officials in the Department of Labor. The presence in the United States of many aliens not legally entitled to reside here was the subject of frequent statements issued by Secretary Davis. Speaking to the convention of the Brotherhood of Railway Trainmen in Cleveland, Ohio, on May 16, he emphasized the evil of unregulated immigration from Mexico. His information on the subject caused him to believe that there was wholesale smuggling of aliens, particularly orientals, across our southwestern boundary. Although it was obviously impossible under the existing system to determine how extensively the immigration laws were being violated, Secretary Davis estimated that a million aliens were illegally within the country. To remedy the situation he proposed that Congress enact a law providing for an annual registration of all aliens, similar to the act which failed to receive support in the Sixty-eighth Congress. W. W. Husband, Commissioner General of Immigration, also tried to arouse public interest in the enforcement of the immigration laws. He charged that the process of smuggling foreigners into the United States was so well perfected that thousands continually waited their turn in Cuba and the price for bringing in Chinese had been fixed at $700. Secretary Davis indicated that he would demand action from Congress at its next session.

Although the immigration law of 1924 was apparently operating to the satisfaction of government officials, attempts were made to perfect the administrative machinery. The Department of Labor desired to establish a system of examination in European countries which would sift out obvious undesirables before permission was granted to start for America. Under the law every immigrant was required to have on his passport the visa of an American consul, but the consular approval was based solely on general information and involved no examination. The Department's plan to institute preliminary examinations was put into effect at the United States Consulate in London on August 6. On that day it was announced that all persons desiring to emigrate from Great Britain to the United States would be given a physical and mental examination before sailing. It was hoped that the new system, if it proved successful, would be extended to other nations and would lighten the task of immigration examiners in this country.

The figures compiled by the Department of Labor showed that net immigration under the act of 1924 was 69 per cent. less during the fiscal year ending June 30, 1925, than during the preceding year. Total number of arrivals was listed as 294,314, while the total number of departures of aliens was 92,726. In the case of Italy, the number returning was far in excess of the number of immigrants, since only 6,203 Italians arrived, but 27,151 departed for their native land. Not all of the European nations filled their quotas during the year. Great Britain, Germany, Czechoslovakia and the Irish Free State did not send as many as 2 per cent. of the number of their nationals resident in this country in 1890.

PRESIDENTIAL POLICY

By Arthur N. Holcombe
Professor at Harvard University

President Coolidge's Inaugural.—President Calvin Coolidge's first elective term began on March 4, 1925. His inaugural address, which was broadcasted throughout the country, contained a general statement of governmental policy. Dealing first with foreign relations, he declared that the United States should "continue to be distinctively American," and should maintain "such a military force as comports the dignity and security of a great people." He favored, however, further disarmament by international agreement, and advocated adherence to the Permanent Court of International Justice, but insisted that the United States should not become "implicated in the political controversies of the Old World."

In domestic affairs he endorsed the principle of government by political parties, and entered a plea for harmonious coöperation between "those who are elected under the same party designation." He interpreted the recent presidential election as an expression of popular confidence in the American judiciary and of opposition to government ownership of railroads. He demanded further economy in public expenditures with a view to further tax reduction, "not because I wish to save money, but because I wish to save people." He cited the "helpful influences of restrictive immigration and the protective tariff," and declared strongly for "the first rule for the guidance of a citizen, his obedience to law." He denounced all attempts to apply any religious test to the holding of office, and closed with an assertion of American idealism which "seeks no earthly empire built on blood and force; . . . the higher state to which (America) seeks the allegiance of mankind is not of human but of divine origin."

Presidential Addresses.—Throughout the year the President continued his practice of giving regular interviews to representatives of the press, at which informal answers were furnished to questions relating to the policy of the Administration. From time to time he set forth his views more systematically in public addresses for which suitable occasions were chosen. Thus on Memorial Day, speaking at Arlington Cemetery, he made a strong appeal for better law enforcement and decried the tendency of local communities to shift their public responsibilities to the central government. "What we need," he declared, "is not more federal government but better local government." June 2, he spoke at the graduation exercises of the Naval Academy at Annapolis, and declared that "to promote peace on earth we must . . . call into action the spiritual and moral forces of mankind." June 8, he spoke at St. Paul, Minnesota, during the celebration of the centennial anniversary of the beginning of Norwegian immigration to the United States, and on July 3 at Cambridge, Massachusetts, where he delivered the address at the celebration of the 150th anniversary of Washington's taking over command of the Continental Army. He there warned the European Powers that American participation in the financial reconstruction of Europe would be contingent upon the pacific settlement of European controversies by the Europeans themselves.

From June 23 to September 9 the President stayed at White Court, Swampscott, Massachusetts. October 6, he addressed the annual convention of the American Legion at Omaha, Nebraska, making a strong plea for religious and racial tolerance among all classes of Americans, and December 7 he spoke before the national convention of the American Farm Bureau Federation at Chicago, setting forth his agricultural program. The following day his annual message to the Congress was read, while he remained at the White House, thus reviving the practice which was initiated by Thomas Jefferson and terminated by Woodrow Wilson.

Message of December 21, 1925.—The President's message strongly recommended adherence by the United States to the Permanent Court of International Justice, and in general endorsed the policies which he had brought forward in previous messages. Beginning with a survey of the state of the Union, he dwelt with proper pride upon the abounding prosperity and, while advocating further reduction of taxes, pointed out that the reduction of governmental expenses had gone about as far as it could. He advocated a rapid discharge of the public debt, and efficient development of public works, such as the Muscle Shoals and Colorado River projects, without involving the Federal Government directly in business operations. He opposed any radical reorganization of the military and naval establishment, but favored further encouragement of air navigation. He called attention to the possibility that the registration of aliens in the country may become necessary in order to prevent violation of the immigration laws; and pointed out the failure of the coal industry to adopt modern methods for the adjustment of labor disputes.

Foreign.—He expressed the hope that the nations of Europe would find a way to reduce their land armaments and suggested that such action would facilitate a further reduction of naval armaments, adding that the American government was willing to call another conference for the limitation of naval armaments, when feasible. He emphasized the importance of law enforcement, especially of the prohibition law. Calling attention to the improvement in the condition of agriculture, he pointed out the complexity of agricultural problems; and while opposing any system of governmental price-fixing, direct or indirect, he favored the further development of coöperative marketing.

Railroads. — His recommendations with reference to the railroads were less definite. He recommended that Congress authorize consolidations under the supervision of the Interstate Commerce Commission, but said nothing about compulsory consolidation or a time limit for voluntary consolidation. He recommended that the government fleet be managed by a single head, endorsed the work of the Federal Trade Commission, and advocated the extension of the civil service system to include all postmasters, collectors of internal revenue, and prohibition agents. He also advocated the enactment of the pending bill for the reorganization of the government departments. Other matters were considered more briefly.

Vice-President's Drive.—The Vice-President, Charles G. Dawes, who was inaugurated on March 4, took advantage of the occasion to urge upon the Senate a reform of its rules of procedure. He believed that a majority of the Senate ought always to be master of its own proceedings and recommended such changes in the rules as would enable the majority to prevent the obstruction of business by a minority and to terminate so-called filibustering. His suggestions were not well received by the Senate and he appealed to the country later, making a series of public addresses in all sections throughout the period when the Senate was adjourned.

THE PRESIDENT'S VIEWS

By John A. Krout
Professor at Columbia University

During the opening months of the year President Coolidge continued to stress the policies which he had done so much to popularize before the presidential election. The problem which received much of his attention and the one with which he had become most closely associated in the popular mind was economy.

General Views on Taxation.—A natural corollary of his program of thrift in expenditures was the possibility of further tax reduction. On both these matters the President had strong support throughout the country. Speaking in Washington on January 27 he indulged in some mathematical calculations in connection with the receipts and expenses of the national government. He believed that, besides the financial requirements of the national debt, not more than $3,000,000,000 should be spent in the fiscal year 1925-1926. If the revenues came up to the estimates he hoped that the same year would show a surplus of more than $370,000,000. Further retrenchment was possible and desirable, he felt, if the number of federal employees was reduced to conform to the real requirements of the federal civil service.

The President took up the question of national and state taxation in an address delivered on February 20 before the National Conference on Inheritance and Estate Taxation. He denounced the inheritance tax in no uncertain terms. When applied by both state and nation, it constituted an unreasonable burden in the form of double taxation and when freed from this objection it was still a form of socialism in the guise of revenue legislation. On the latter point the President was emphatic: "If we are to adopt socialism," he said, "it should be presented to the people of the country as socialism, and not under the guise of a law to collect revenue. The people are able to determine for themselves the desirability of a particular public policy and do not ask to have such policies forced upon them by indirection." In most cases the existing rates imposed on estates seemed to him to be confiscatory.

The Inaugural.—March 4, 1925, at his inauguration as President in his own right, President Coolidge had an opportunity to present an example of the economy which he had been advocating by precept. The inaugural ceremonies, following the precedent set by the late President Harding, were as simple as seemed consistent with the dignity of a great nation. No elaborate military parade followed the President from the White House to the Capitol and no expensive ball brought the day's ceremony to a close. The inaugural address broadcast to millions of Americans throughout the land contained a reaffirmation of the President's faith.

Taxation.—In the course of his discussion of the cost of government, he said: "I favor the policy of economy not because I wish to save money, but because I wish to save people. The men and women of this country who toil are the ones who bear the cost of government. Economy is idealism in its most practical form." As an outcome of this practical form of idealism tax reduction would result. Specifically, this tax reform ought to repeal outright the federal inheritance tax and reduce materially the existing rates of the income tax. Few paragraphs in the inaugural so clearly indicated the President's purpose and program as those dealing with financial matters.

Other Issues.—On other domestic issues his pronouncements were less definite. He demanded responsible party government with those "elected under the same party designation" maintaining harmony and coöperating in the formulation of a legislative program. The election, he asserted, had been a vote of confidence in the judiciary and a clear repudiation of the principle of public ownership of railroads and other public utilities. He referred in passing to the "helpful influences of restrictive immigration and a protective tariff." There was no indication, however, of whether he expected any change in the immigration and tariff laws. His emphatic declarations in regard to "obedience to law" were regarded as a veiled attack upon the violations of the nation's liquor laws. With this he combined a spirited plea for religious toleration denouncing "any inquisition either within or without the law to apply any religious test to the holding of office."

Foreign.—As the basis of a foreign policy the President urged the nation to continue to be "distinctly American," a statement which he later amplified by a word of caution against becoming involved in the political controversies of the Old World. After carefully outlining the effects of the World War upon the United States he suggested that in the interests of security and peace there were two decisions which it seemed desirable for the nation to make in the immediate future. One was to coöperate in further disarmament through international conference and agreement, and the other was to assume our place with the supporters of the Permanent Court of International Justice.

Neither in a disarmament conference nor in adherence to the World Court did he believe there was any danger of failing to maintain "our position of political detachment and independence." In conclusion he disclaimed for America any desire for foreign domination or an "earthly empire built on blood and force."

Developments subsequent to March 4 proved that President Coolidge was chiefly interested in tax reduction, limitation of armaments and American participation in the work of the World Court. On all of these questions he sought to lead the opinion of the country to the point where definite action would have the support of the great majority of American citizens. His plans were patiently formulated, but he did not lose sight of his ultimate purpose.

ECONOMY

Budget. — May 6, White House spokesmen announced that the President was determined to reduce the budget for the next fiscal year by at least $300,000,000. Economies in the executive departments, independent bureaus and commissions had been ordered, which would pave the way for a considerable decrease in tax schedules. From the Treasury Department came encouraging estimates which indicated that the surplus at the end of the fiscal year, June 30, would be in excess of $100,000,000. The President used this report to urge the administrative officers responsible for the compilation of the budget estimates to keep expenditures for 1926-1927 below $3,000,000,000. Under the direction of Herbert M. Lord, Director of the Bureau of the Budget, experts were determining when it would be possible to curtail the appropriations asked by the various departments.

Criticisms.—In the meantime the program of governmental economy, though it seemed to have the endorsement of a large majority in the country, was attacked by several groups. Visitors to the White House during the month of April warned the President that business was in danger of being adversely affected by the campaign against unnecessary expenditures. Former Governor Henry J. Allen of Kansas reported that business was being injured by too much talk of thrift and that a buyers' strike seemed to be developing. From another quarter there came appeals against the reduction of appropriations for the army and navy. Organizations interested in the maintenance of an adequate national defense complained that the nation's defensive strength was apt to be permanently weakened as the result of a too zealous devotion to a policy of retrenchment.

With these protests President Coolidge apparently had little sympathy, for he continued to stress both governmental and individual thrift in his speeches and interviews with the press. May 29, a proposal came from the White House for a survey by military experts to determine whether the regular army could be reduced from 118,000 to 111,000 men. The Administration spokesmen pointed out that such a reduction would mean an annual saving of $25,000,000, but they preferred to forego the financial retrenchment, if the military establishment would be seriously weakened.

Tax Reduction Plan.—June 22, the evening before he left Washington for his summer residence at Swampscott, Massachusetts, President Coolidge delivered his annual address to the assembly of administrative officers charged with preparing the budget for the coming fiscal year. The occasion gave him an opportunity to recount the accomplishments of the government in its economy program, and to pledge himself once more to tax reduction. In speaking of achievements he pointed out the fact that during four years of the operation of the budget system $2,081,000,000 had been saved through a decrease in appropriations and more than $3,400,000,000 of the national debt had been paid. He believed that these achievements would be duplicated in the future, but one important obstacle stood in the way of further economy. It was the legislation "under which the Federal Government hands out contributions to the States." He deplored the tendency of the states to turn to the national government for aid in projects where the state government ought to assume the responsibility.

In a few sentences he answered the charge that the economy program was hurting business. "Economy in the cost of government," he stated, "is inseparable from reduction in taxes. I have been unable to determine how reduction in taxes is injurious to business. . . . There can be no interruption in this effort for constructive economy in the federal business." He assured the country that there would be a considerable downward revision of taxes by the next Congress.

SUMMER CONFERENCES

During July and August the President was frequently in conference with Congressional leaders. It was evident from press reports of these interviews that the Administration was particularly concerned with the type of legislation which would bring the most desirable form of tax reduction. The political aspect of the situation was presented to the President by Senator Charles Curtis of Kansas and by Representative John O. Tilson of Connecticut, Republican floor leader in the House of Representatives. These leaders were confident that Congress would effect a reduction in the income tax prior to March 15, 1926, the date on which all income tax returns must be in the hands of government officials. Though it was well known that in both House and Senate there would be a contest over the changing of the rates, most of the Administration advisers urged a reduction to apply to incomes for 1925. On September 4 the President announced that he expected prompt action from Congress on the subject of the income tax, but he failed to indicate whether he had decided as to the details of a new tax measure.

LIMITATION OF ARMAMENTS

Proposed International Conference.—Financial matters were not the sole concern of President Coolidge during his stay in Massachusetts. As early as February 19 he had informed the press correspondents that he was strongly in favor of another international conference on the limitation of armaments to carry forward the work begun by the Washington Conference of 1921. Such a conference, he believed, should deal primarily with auxiliary ships and other craft not specifically mentioned in the Washington treaties. In order to ascertain foreign sentiment in the matter our ambassadors at Paris, London, Rome and Tokio had entered into diplomatic conversations with the governments to which they were accredited.

Delay.—In his inaugural address the President mentioned his plans and on March 25, after a conference with Senator Borah, Chairman of the Senate Committee on Foreign Relations, he indicated that formal invitations might be sent to the Powers most vitally interested. In the meantime, however, developments in Europe caused the Administration to delay action. In view of the projected conference on disarmament under the auspices of the League of Nations it seemed unwise to issue formal invitations for a meeting in Washington until the nature of the League's proposals was clear.

Though the President's plans were indefinitely postponed, he did not allow the matter to rest. Frequently, in his meetings with the representatives of the press he stressed the importance of relieving all nations from the burden of excessive armaments. On September 22 he issued a definite statement in which he announced his decision to submit to Congress the question of whether or not the United States should take the lead in a plan of general disarmament.

General Consolidation. — A domestic problem which claimed much of the President's time during the summer and autumn was transportation. On August 3 in one of his customary talks to the newspaper correspondents he expressed his interest in a general consolidation of railroads as a means of relieving the transportation and solving the rate problem. He believed that the absorption of non-paying lines in large unified systems would make possible rate adjustments which would not enrich one road at the expense of another. In line with his opposition to excessive governmental interference with business interests he hoped that such consolidations would be effected voluntarily by the roads without any further legislation from Congress.

Compulsory Consolidation.—Somewhat later in the month he discussed with Senator Watson of Indiana the question of compulsory consolidation. In the President's opinion the railroads, while opposed to compulsory groupings of lines, would take the initiative in consolidations under the supervisory direction of the Interstate Commerce Commission. Though he admitted that the delay of the Interstate Commerce Commission in the matter of the proposed Van Sweringen merger of the Nickel Plate lines was holding back other proposals, he was confident that unifications similar to those worked out by the Missouri Pacific and the Southern Pacific would be suggested by the railroad executives. Senator Watson was inclined to give the roads from five to seven years in which to effect voluntary consolidations with the option of compulsory groupings thereafter. The President reserved his definitive recommendations for his annual message to Congress in December.

AGRICULTURE

Freight Rates.—One element in the Administration's interest in the railroad problem was its bearing upon the agricultural situation throughout the country. Equitable readjustments of freight rates were regarded by President Coolidge as primary factors in aiding the farmers to market their crops at a reasonable profit. Although Congress had adjourned in March without enacting any legislative relief, the President believed that some governmental aid would be necessary.

Hands Off.—As he studied agricultural conditions during the summer, however, he came to the conclusion that the less the government interfered the better off the farmer would be. His pronounced opposition to paternalism, combined with his observation of improved conditions in the grain-growing states, persuaded him to proceed cautiously in advocating any possible changes in legislative policy.

Question of Guaranty.—This conservative note was dominant in his address to the national convention of the American Farm Bureau Federation at Chicago on December 7. He denounced all proposals, including those in the McNary-Haugen Bill which failed to pass the Sixty-eighth Congress, to organize corporations through which the government would engage in buying or selling farm products. Of price-fixing by the government, whether done directly or indirectly, he said: "This would be a dangerous undertaking, and, as the emergency is not so acute, it seems at present to have lost much of its support. The moment the government engages in buying and selling, by that act it is fixing prices. Ultimately it would end the independence which the farmers of this country enjoy. It would apparently destroy cooperative associations and all other marketing machinery, for no one can compete with the government. . . . To have agriculture worth anything it must rest on an independent business basis. It cannot at the same time be part private business and part government business."

PROTECTIVE TARIFF

With considerable vigor the President defended the protective tariff against the attacks of those who claim that the rates are unfavorable to the farmer. He contended that 88 per cent. of American imports are "free, or luxuries, or protected to help the farmer," leaving only 12 per cent. of our imports on which the agricultural industry pays any part of the tariff. In addition, the tariff confers a benefit upon the farmer by supplying him with a home market largely made possible through the development of our protected industries.

With the tariff as an aid to agriculture the President linked the farm loan and intermediate credit banks. Through these agencies more than $1,200,000,000 has been advanced to 350,000 farmers in all parts of the country.

But the greatest hope for the future, he believed, lay in an intelligent development of the coöperative movement. With economic information furnished by the Department of Agriculture, with better warehouse and storage facilities and with a better credit structure much could be done to take care of the farmer's marketing problem. The government's duty was to assist the farmers to promote their own welfare through coöperative marketing. This solution met with the approval of many farm organizations in the East, but it was a disappointment to members of the Farm Bureau in the middle west and northwest, where the problem of surplus crops is most acute.

In his annual message on December 8 (elsewhere discussed in this volume) the President adhered closely to the policies which he had announced from time to time during the year.

EVENTS IN FEDERAL ADMINISTRATIVE COMMISSIONS

By John A. Krout

Professor at Columbia University

In General.—A problem of considerable importance arose during the year as a result of President Coolidge's effort to bring the Federal Trade Commission and the Shipping Board into line with his policies. When Congress created the Federal Trade Commission in 1914 and the Shipping Board in 1916, it gave them semi-judicial powers as well as administrative duties. In the case of the Shipping Board, for example, the members were to form a quasi-judicial body for the purpose of regulating ocean freight rates, but within a year the management of the Emergency Fleet Corporation, an administrative task, was assigned to the Board. Controversies in 1925 raised the question of the extent to which such boards and commissions possessing functions not purely administrative were subject to executive control. President Coolidge apparently took the position that Congress did not intend to place either the Shipping Board or the Federal Trade Commission in the category of government agencies beyond the jurisdiction of the chief executive.

Trade Commission. — In April President Coolidge filled a vacancy on the Federal Trade Commission by appointing ex-Representative William E. Humphrey of Washington, who was one of the western managers of the President's campaign for renomination in 1924. The appointment caused a political controversy, the Democrats, who were now in the minority, insisting that Congress had intended to keep the Commission bipartisan. When the majority proceeded to modify the rules, the minority charged that the Commission had come completely under the dominance of the President. The new rules provided that the details of complaints filed should not be made public until proved and that, if firms consented to abandon their alleged methods of unfair competition, the charges against them should be automatically dropped. Because of the division of opinion within the Commission, the trouble was given full publicity in the press, resulting in much adverse criticism. Leaders in the Senate were aroused because a Senate resolution, requesting an investigation of certain business practices, had been referred to the Attorney-General for a ruling on the legality of the Senate's request. Senators George W. Norris of Nebraska and William E. Borah of Idaho were convinced that the Commission no longer served any useful purpose, while Senator William M. Butler called its members "Federal Paul Prys" who did more harm than good. Secretary of Commerce Hoover, however, dealt with the real problem when he questioned the wisdom of combining semi-judicial and semi-legislative with strictly administrative functions. He favored a separation of the former from the latter, with administrative functions entrusted to the ordinary executive officers. President Coolidge let it be known that he was opposed to the abolition of the Commission and regarded it as an important governmental agency.

Those who expected a radical change in the policy of the Federal Trade Commission toward mergers and consolidations were surprised that the Commission on August 7 voted to order the International Shoe Company of St. Louis to dispose of its stock holdings in the McElwain Company of Boston within sixty days. The purchase of a controlling interest in the New England concern by the St. Louis firm constituted a violation of the Clayton act, since it eliminated from competition the largest competitor in men's dress shoes. Although Commissioners Huston Thompson and J. S. Nugent filed complaint, no action was taken in the merger of the General Baking Company, Ward Baking Corporation and Continental Baking Corporation, a consolidation affecting 157 plants with a capitalization of $400,000,000. As the result of an extended investigation into the activities of the Aluminum Company of America the Federal Trade Commission made public on September 24 a complaint charging the company with failure to comply with a previous court order and with practices tending to establish a monopoly in aluminum in the United States. The closing months of the year were marked by renewed activity on the part of the Commission. On October 20 hearings began in connection with the complaint filed against the Radio Corporation of America, and on November 24 similar testimony was heard with reference to charges of monopoly control in the moving picture industry. The Commission partially reversed its previous ruling against publicity by publishing allegations of unfair trade methods used by agents of the National Cash Register Company. There was no certainty, however, that the members of the Federal Trade Commission had decided to use the weapon of publicity more frequently.

United States Shipping Board.—The troubles in the United States Shipping Board were fundamentally the same as those which seemed to impair public confidence in the Federal Trade Commission. Congress entrusted to the Board the management of the Emergency Fleet Corporation which operated the government's ships. Criticism of the policies of the Shipping Board in its administrative duties caused President Coolidge in January, 1924, to propose that all the work of operating United States ships be delegated to Admiral Leigh Palmer. The members of the Board rather unwillingly accepted the President's suggestion, appointed Admiral Palmer and gave him almost complete authority. During 1925 the disposal of the government's surplus ships to private companies became the chief bone of contention. The sale of five ships to the R. Stanley Dollar Company for $3,850,000 was challenged by the Pacific Mail Steamship Company, which sought a court injunction to prevent the transfer. It was claimed that by the sale the Shipping Board was conferring on the Dollar lines monopoly control of a certain type of carrier. On April 20 President Coolidge ordered an investigation of the sale, but on the same day the court upheld the transfer as valid under the terms of the Merchant Marine Act of 1920. On May 14 further controversy developed over Henry Ford's offer to buy some 400 vessels, which were lying idle, at a figure to be determined without competitive bidding. Certain members of the Shipping Board vigorously opposed the idea of selling useless ships at a private sale without competition between purchasers. It was admitted at the White House, however, that the Board possessed the power to dispose of the vessels as it saw fit. Chairman O'Connor continued negotiations with the Ford Motor Company, but no sale was effected until August 4, when 200 vessels were transferred to the company at a price that represented their scrap value.

In the meantime, President Coolidge had intervened in the controversy, recommending on June 5 that Admiral Palmer, as President of the Emergency Fleet Corporation, be authorized to negotiate future sales. After deliberation the Shipping Board again complied with the President's wishes. As a result of the change in authority, it was announced on July 6 that operators of vessels owned by the government would be given the first opportunity to purchase ships then in commission. Bids were opened at the same time on 200 ships to be sold for scrap. Opposition to Admiral Palmer's methods speedily developed and a movement within the Shipping Board was started for the purpose of recovering the authority which had been surrendered at the request of President Coolidge. The outstanding critic of the Palmer administration was Commissioner Bert E. Haney of Oregon. On August 27 President Coolidge demanded Mr. Haney's resignation on the ground that the Commissioner had only been reappointed to the Shipping Board earlier in the summer, after he had promised the President to abandon the campaign to discredit Admiral Palmer. Commissioner Haney refused to resign, denied that he had made any promises to the President, challenged the President's authority to remove him and pointed out the fact that the Shipping Board had become a mere administrative agency under complete executive control. This he insisted was contrary to the intention of Congress when it created the Shipping Board.

Though President Coolidge was not convinced that he had the power to remove a member of the Board, he remained in the contest by announcing on September 1 that he would support Admiral Palmer. The struggle came to a climax early in October, when a majority of the Shipping Board removed Admiral Palmer and designated E. E. Crawley of Boston as President of the Emergency Fleet Corporation. This action directly challenged the policy and authority of President Coolidge, who appointed a special commissioner, H. G. Dalton of Cleveland, to make a thorough investigation of the controversy. As a protest against the Shipping Board's action, Rear Admiral H. I. Cone resigned as General Manager of the Fleet Corporation. President Coolidge indicated in his message to Congress in December that he favored a single executive head for the government merchant marine with the Shipping Board's powers limited to judicial and regulatory functions.

Interstate Commerce Commission.—Chief interest in the work of the Interstate Commerce Commission during the year centered in its hearings regarding the proposed Nickel Plate merger. The consolidation plans formulated largely under the guidance of the Van Sweringen brothers of Cleveland involved the Nickel Plate, Chesapeake and Ohio, Erie, Hocking Valley and Pere Marquette roads. When the approval of the Interstate Commerce Commission was sought, considerable opposition to the project developed among the minority stockholders of the Hocking Valley and Chesapeake and Ohio railroads. As a result the hearings before the Commission were prolonged. From April to the close of the year arguments for and against the merger were heard at intermittent sessions. On December 19 Commissioner Charles C. McChord announced that a decision would not be reached before January, 1926. President Coolidge was particularly interested in the outcome of the hearings because he believed that the decision of the Interstate Commerce Commission would have a far-reaching effect on future plans for railroad consolidation. There was a strong feeling in Administration circles that the Interstate Commerce Commission would eventually approve the Nickel Plate merger with certain modifications in traffic arrangements and financial adjustments which would make the plan more acceptable to the stockholders of the protesting roads.

The failure of the Chicago, Milwaukee & St. Paul Railway in March and its subsequent passing into the hands of a receiver resulted in an investigation by the Interstate Commerce Commission to determine whether the receivership was made necessary by legitimate economic difficulties. A committee organized by certain holders of the railroad's securities charged that the bankruptcy petition was filed by the directors for purposes of financial reorganization and was not justified by the condition of the railroad's business. On December 15 Commissioner Cox, who was in charge of the Interstate Commerce Commission's investigation, transferred the hearings from Washington to Chicago in order to obtain a better understanding of the financial embarrassments of the road. It was announced that in January testimony would be taken in New York concerning the St. Paul's dealings with New York banks. On August 12 the Interstate Commerce Commission attempted to provide substitutes for anthracite coal at more reasonable rates when it handed down a decision ordering reductions in freight rates on Virginia smokeless coal to New England and north Atlantic seaports. The Commission approved on October 5 a recommendation of its experts advising the New York, Pittsburgh and Chicago Railroad to abandon its plan to build a new line across the state line of Pennsylvania. It was understood that the proposed line was part of the project of the Delaware and Hudson to construct another trunk line system between Chicago and New York.

The question of the personnel of the Interstate Commerce Commission became a matter of controversy with the nomination of Thomas M. Woodlock of New York to a vacancy which existed. A number of southern Senators, notably Oscar Underwood of Alabama, objected to the appointment on the ground that the membership of the Commission should represent regional interests and that the South was entitled to representation. Although the nomination was not confirmed by the Senate, President Coolidge on March 25 gave Woodlock a recess appointment. There were many suggestions that the matter of regional representation could be worked out more easily if the membership of the Interstate Commerce Commission were increased. In December Commissioner McChord stated that an increase in membership from eleven to thirteen would facilitate the work of the Commission. At the same time President Coolidge indicated his opinion that two additional commissions were desirable.

FEDERAL PROSECUTIONS

By John A. Krout

Professor at Columbia University

Oil Land Leases.—Reverberations of the Congressional investigations into the leasing of United States oil lands were heard in the federal courts during 1925. Civil suits were instituted by the government against Harry F. Sinclair and the Mammoth Oil Company in connection with the Teapot Dome lease, and against Edward L. Doheny and his associates in connection with the Elk Hills lease. The latter case was heard by District Judge Paul McCormick at Los Angeles. His decision handed down on May 28 favored the government's contention on all points. The contracts and leases were invalid "by reason of the fraud and conspiracy of Secretary Fall and Mr. Doheny." The court went even further and denied the legality of President Harding's executive order transferring the naval oil lands from the Navy to the Interior Department. An appeal from the decision was immediately taken by the Doheny interests to the Circuit Court of Appeals. In the meantime, the civil suit against the Sinclair companies was argued at Cheyenne, Wyoming, before District Judge F. Blake Kennedy. Proceedings began on March 9 and evidence and argument were presented until March 26. The attorneys for the United States, Owen J. Roberts and Atlee Pomerene, sought cancellation of the lease on the ground that there had been collusion and fraud in the granting of the lease by Secretary Albert B. Fall and representatives of the oil company. The evidence of fraud was more circumstantial than in the case of the Elk Hills lease and the government attorneys were not able to present all the testimony that they hoped to secure. Judge Kennedy reserved judgment and did not announce his decision until June 19. His opinion was almost directly opposite to the conclusion reached by Judge McCormick in the Doheny case. Judge Kennedy held that President Harding's executive order transferring the oil reserves to the Department of Interior was legal. He found "suspicious circumstances," but no evidence of conspiracy in the financial dealings of Secretary Fall and his son-in-law with the Continental Trading Company whose officers were connected with the Sinclair oil interests. By his decision Teapot Dome remained in the hands of Harry F. Sinclair. On July 6 counsel for the government filed a motion for a re-opening of the case claiming that new evidence had been discovered. When Judge Kennedy denied the motion, an appeal was taken to the Circuit Court of Appeals. It was hoped that the higher court would straighten out the legal tangle in which the oil land cases had become involved.

Federal attorneys secured an indictment against Albert B. Fall, Harry F. Sinclair, Edward L. Doheny and Edward L. Doheny, Jr., charging bribery and conspiracy to defraud the United States government. On April 3, however, Chief Justice McCoy of the District of Columbia quashed the indictment on a technicality connected with the presentation of the case to the grand jury. An appeal from Justice McCoy's decision was carried to the Court of Appeals of the District of Columbia, which overruled the lower court. On December 19 the Court of Appeals refused the motion of attorneys for Fall and the Dohenys to reconsider its decision that the original indictments were valid. There was a possibility that the defendants would attempt to carry the case to the United States Supreme Court. On May 28 new indictments were returned by a federal grand jury at Washington, which dropped the bribery charge and emphasized the criminal conspiracy to defraud the government of property through the negotiation of the oil land leases. A lengthy postponement was granted in order to allow opposing counsel to prepare. There were indications in April that the final report of the Senate Committee on Public Lands, which was investigating the activities of the Midwest Refining Company in the Salt Creek oil fields of Wyoming, might throw additional light on the Teapot Dome lease.

Wheeler Case.—Two federal suits against Senator Burton K. Wheeler of Montana aroused widespread interest because of their apparent political implications. Senator Wheeler charged that the prosecutions were inspired by the enemies he had made through his conduct of the investigation into the affairs of the Department of Justice, while Harry M. Daugherty was Attorney-General. He was first indicted by a federal grand jury at Great Falls, Montana, on the charge of accepting payment, after he became United States senator, for representing a constituent in matters pending before the Interior Department. The case came to trial early in April with Senator Walsh of Montana as Senator Wheeler's chief counsel. When the defendant himself took the stand, he denied the testimony of witnesses for the prosecution that he had made arrangements through former solicitor Edwin S. Booth of the Interior Department to secure favorable action on certain oil land claims which Gordon Campbell of Montana had filed with the department. The case went to the jury on April 24, and after ten minutes of deliberation a verdict of acquittal was returned. Senator Wheeler was also indicted on March 27 by a grand jury in the District of Columbia, on the charge of conspiring with Edwin S. Booth and Gordon Campbell to secure more than the legal number of permits to prospect upon public lands for oil and gas. It was substantially the same transaction as that for which he had been indicted in the state of Montana. After his acquittal at Great Falls Senator Wheeler entered a demurrer and plea of former acquittal in answer to the District of Columbia indictment. On November 30 William E. Leahy, special assistant to the Attorney-General, admitted that the government's case was weak because the federal statute fails to specifically limit the number of permits that may be issued to one person. Justice Jennings Bailey took under advisement the plea of Senator Walsh, counsel for Senator Wheeler, that the case against the defendants be thrown out of court.

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Adams, R. G.—*A History of the Foreign Policy of the United States.* N. Y., Macmillan. Unusually readable and suggestive survey. Not fundamental, but very useful.

Andrews, C. M.—*The Colonial Background of the American Revolution.* New Haven, Yale Press. A scholarly consideration of the causes of the Revolution together with a plea for the whole truth in considering its history.

Beck, J. M.—*The Constitution of the United States.* N. Y., Doran. Interesting, good and timely.

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DIVISION II

INTERNATIONAL RELATIONS AFFECTING THE UNITED STATES

DIPLOMATIC PERSONNEL

BY MARGARET DEFOREST HICKS

POLITICAL EXPERT, WAR DEPARTMENT GENERAL STAFF

	ACCREDITED BY UNITED STATES		ACCREDITED TO UNITED STATES	
Country		Appointed		Commissioned
	AMBASSADORS			
Argentina	Peter Augustus Jay	1925	Mr. Honorio Pueyrredon	1924
Belgium	William Phillips	1924	Baron de Cartier de Marchienne	1920
Brazil	Edwin V. Morgan	1912	Mr. S. Gurgel do Amaral	1925
Chile	William Miller Collier	1921	Señor Don Beltran Mathieu	1918
Cuba	Enoch H. Crowder	1923	Señor Don Cosme de la Torriente	1923
France	Myron T. Herrick	1921	M. Emile Daeschner	1925
Germany	Jacob Gould Schurman	1925	Baron Ago Maltzan	1925
Great Britain	Alanson B. Houghton	1925	The Rt. Hon. Sir Esme Howard	1925
Italy	Henry P. Fletcher	1924	Nobile Diacomo de Martino	1925
Japan	Charles MacVeagh	1925	Mr. Tsuneo Matsudaira	1925
Mexico	James Rockwell Sheffield	1924	Señor Don Manuel C. Téllez	1925
Peru	Miles Poindexter	1923	Dr. Hermán Velarde	1924
Russia			Mr. Serge Ugket, Financial Attaché (N. Y.)	
Spain	Alexander P. Moore	1923	Señor Don Juan Riaño y Gayangos	1913
Turkey	*			
	MINISTERS PLENIPOTENTIARY			
Albania	Charles C. Hart	1925		
Austria	Albert Henry Washburn	1922	Mr. Edgar L. G. Prochnik	1925
Bolivia	Jesse S. Cottrell	1921	Señor Dr. Don Ricardo Jaimes Freyre	1923
Bulgaria	Charles S. Wilson	1921	Mr. Stephen P. Bisseroff (Chargé d'affaires A.I.)	1925
China	John VanA. MacMurray	1925	Mr. Sao Ke Alfred Sze	1921
Colombia	Samuel H. Piles	1922	Dr. Enrique Olaya	1922
Costa Rica	Roy T. Davis	1922	Señor Don J. Rafael Oreamuno	1922
Czechoslovakia	Lewis Einstein	1921	Dr. František Chvalkovský	1923
Denmark	John Dyneley Prince	1921	Mr. Constantin Brun	1912
Dominican Republic	Evan Young	1925	Señor José del Carmen Ariza	1924
Ecuador	Gerhard A. Bading	1922	Señor Don Juan Barberis (Chargé d'affaires A.I.)	1925
Egypt	J. Morton Howell	1922	Mahmoud Samy Pasha	1925
Esthonia	Frederick W. B. Coleman	1922	Mr. Antonio Piip	1923
Finland	Alfred J. Pearson	1925	Mr. Axel Leonard Aström	1922
Greece	Irwin B. Laughlin	1924	Mr. Charalambos Simopoulos	1924
Guatemala	Arthur H. Geissler	1922	Señor Don Francisco Sánchez Latour	1922
Haiti	†		Mr. Hannibal Price	1925
Honduras	George T. Summerlin	1925	Señor Luis Bográn	1925
Hungary	Theodore Brentano	1922	Count László Széchényi	1922

* Rear Ad. Mark L. Bristol, High Commissioner, appointed in 1919.

† Appointment unfilled since death of the late Arthur Bailly Blanchard.

ACCREDITED BY UNITED STATES — ACCREDITED TO UNITED STATES

MINISTERS PLENIPOTENTIARY (*Continued*)

Country		Appointed		Commissioned
Irish Free State			Mr. Timothy A. Smiddy	1924
Latvia	Frederick W. B. Coleman	1922	Mr. Charles L. Seya	1925
Liberia	Solomon Porter Hood	1921	....	
Lithuania	Frederick W. B. Coleman	1922	Mr. Kazys Bizauskas	1924
Luxemburg	William Phillips	1924	Baron Raymond de Waha (Chargé d'affaires)	1920
Morocco	Maxwell Blake (Dip'l Ag't)	1925	....	
Netherlands	Richard M. Tobin	1923	Jonkheer Dr. A. C. D. deGraeff	1923
Nicaragua	Charles C. Eberhardt	1925	Señor Dr. Pedro González	1925
Norway	Laurits S. Swenson	1921	Mr. Helmer H. Bryn	1910
Panama	John Glover South	1921	Señor Don Ricardo Alfaro	1922
Paraguay	George L. Kreeck	1925	Dr. Don Eusebio Ayala	1925
Persia	Hoffman Philip	1925	Mr. Husséïn Alaï	1921
Poland	John B. Stetson, Jr.	1925	Dr. Wladyslaw Wróblewski	1922
Portugal	Fred Morris Dearing	1922	Viscount d'Alte	1902
Rumania	William S. Culbertson	1925	Prince A. Bibesco	1921
Salvador	Montgomery Schuyler	1921	Dr. Don Hector David Castro (Chargé d'affaires, A.I.)	1922
Serbs, Croates, and Slovenes, Kingdom of	H. Percival Dodge	1919	Dr. Ante Tresich Pavichich	1922
Siam	William W. Russell	1925	Phya Buri Navarasth	1923
Sweden	Robert Woods Bliss	1923	Captain Axel F. Wallenberg	1921
Switzerland	Hugh S. Gibson	1924	Mr. Marc Peter	1920
Uruguay	U. Grant-Smith	1925	Dr. J. Varela	1920
Venezuela	Willis C. Cook	1921	Señor Don Pedro Manuel Arcaya	1922

THE UNITED STATES FOREIGN SERVICE

BY MARGARET DEFOREST HICKS

POLITICAL EXPERT, WAR DEPARTMENT GENERAL STAFF

A momentous and far-reaching change occurred in the status of the diplomatic and consular services of the United States when, on July 1, 1924, the so-called Rogers Bill became a law. By this act, approved on May 24, 1924, the former diplomatic and consular services were merged into one, to be known thenceforth as the United States Foreign Service.

Prior to 1906, both the diplomatic and consular services were administered on a political basis. In that year the consular service was placed on a civil service basis, and three years later (1909) a similar status was accorded the diplomatic service also.

There were, however, manifest improvements needed even after these two results had been brought about, and it was to effect these improvements that the Rogers Bill was drafted and made a law.

Purposes of the Rogers Bill.—The most obvious weaknesses of the former dual system centered about salaries, promotions, non-interchangeability of position between the two services, and the lack of adequate retirement provisions. The principal sections of the Rogers Bill (Public—No. 135—68th Congress; H. R. 6357) deal with these problems most effectively. By virtue of its provisions: (*a*) sufficiently adequate salaries are provided to make it possible for men not possessing independent means to enter the service; (*b*) sufficient reward for meritorious service is offered to attract and hold able men by placing within the reach of all who show adequate ability the attainment of the grade of minister; (*c*) foreign service officers may be assigned either to consular or diplomatic posts, the positions being interchangeable; (*d*) a retirement and pension system is inaugurated.

Analysis of the Rogers Bill.—Provision is made that "hereafter the Diplomatic and Consular Service of the United States shall be known as the Foreign Service of the United States." (Section 1.)

The term "Foreign Service officer" shall be the designation of every member of the Foreign Service below the rank of minister "all of whom are subject to promotion on merit and who may be assigned to duty in either the diplomatic or the consular branch of the Foreign Service at the discretion of the President." (Section 2.)

The former diplomatic and consular classes are done away, and provision is made for nine new classes with salaries ranging from $9,000 in class one, downward to $3,000 in class nine; and with unclassified subordinate grades from $3,000 downward. (Sections 3, 4.)

Appointments to the position of Foreign Service officer shall be made only after examination and a suitable period of probation in an unclassified grade; or, after five years of continuous service in the Department of State, by transfer therefrom under such rules and regulations as the President may prescribe. (Section 5.)

From time to time the Secretary of State shall report to the President the names of Foreign Service officers showing special ability, or showing merit for promotion to the grade of minister; and the names of persons found upon taking the prescribed examinations to have fitness for appointment to the service. (Section 6.)

Reclassification of the former diplomatic and consular officers as provided into the new grades one to nine respectively, prescribed under the new law. (Sections 7, 8.)

All Foreign Service officers must deposit a bond with the Treasury of the United States. (Section 9.)

Foreign Service officers inspecting either consular or diplomatic offices shall have the same duties, powers, and prerogatives formerly accorded the consuls general at large under the old system. (Section 10.)

Financial provisions are made. (Section 11.)

A very important provision, in view of the fact that the act does not raise the salaries of Ambassadors ($17,500) or Ministers ($12,000 and $10,000), is that the President may grant them "representation allowances out of any money which may be appropriated for such purposes from time to time by Congress."

Funds for a private secretary to each Ambassador are provided. (Section 13.)

Any Foreign Service officer may be assigned to the Department of State for a limited period without loss of class or salary. (Section 14.)

At the discretion of the Secretary of State, a Foreign Service officer may be ordered to the United States on statutory leave of absence. (Section 15.)

Service officers may be appointed to serve as Counselors of Embassy or Legation, commissioners, chargés d'affaires, ministers resident, or diplomatic agents without loss of grade, class, or salary with, in certain cases, additional compensation. (Sections 16, 17.)

Foreign Service officers may be retired upon reaching the age of 65 years, annual pensions may be paid from an annuity fund secured by a yearly deduction of 5 per cent. from salaries, and a commensurate yearly contribution to the fund by the Government. (Section 18.)

Retired Foreign Service officers may be recalled to active service, in the event of public emergency. (Section 19.)

All former provisions of law not inconsistent with the present Act are made applicable, and all contrary provisions are repealed. (Section 20.)

Financial provisions appear. (Section 21.)

"The titles 'Second Assistant Secretary of State' and 'Third Assistant Secretary of State' shall hereafter be known as 'Assistant Secretary of State' without numerical distinction of rank." An additional "Assistant Secretary of State" replaces the former position of Director of the Consular Service. (Section 22.)

"This Act shall take effect on July 1, 1924." (Section 22.)

Administrative Regulations. — Of equal importance with the Rogers Bill are the Administrative Regulations embodied in Executive Order No. 4022, June 7, 1924. These regulations give practical effect to all the chief purposes of the law. They set up the machinery whereby it is put into operation by providing for a Foreign Service Personnel Board, an Executive Committee, a Board of Examiners, a Foreign Service School, and a Foreign Service School Board.

Foreign Service Personnel Board.—The duties of this board are, to examine into the character, ability, efficiency, experience and general availability of all members of the Service with a view to promotion, transfers, the consideration of controversies or delinquencies, and the recommendation of those showing marked general ability to the rank of minister, as vacancies arise. The board is composed of the Under Secretary of State, who is chairman, an Assistant Secretary of State designated by the Secretary of State, the Assistant Secretary of State formerly known as the Director of the Consular Service, and members of the Executive Committee of the Foreign Service Personnel Board.

The Executive Committee.—The duties of the Executive Committee of the Foreign Service Personnel Board are left to the discretion of the Secretary of State and are prescribed by him. The board is composed of a chairman, and two other members who are Foreign Service officers of high rank representing both the diplomatic and consular branches of the Foreign Service. These three are selected by the other members of the Personnel Board with the approval of the Secretary of State.

The Board of Examiners.—The duties of this board are to formulate rules for and hold examinations of applicants for commission to the Foreign Service and to determine those who are fitted for appointment, and the scope and method of the examinations which shall be both oral and written and open only to American citizens of good standing between the ages of 22 and 35 and designated by the President for appointment subject to examination. The board is composed of the Under Secretary of State, an Assistant Secretary of State to be designated by the Secretary of State, the Assistant Secretary of State formerly known as the Director of the Consular Service, the Chairman of the Executive Committee of the Foreign Service Personnel Board, and the Chief Examiner of the Civil Service Commission or such person as may be designated by him to serve in his stead.

The Foreign Service School.—The purpose of this school is to provide a one year term of instruction in the Department of State as a period of probation for those successfully passing the examinations given by the Board of Examiners, and to adjudge, during this period, the new appointees to the Service, as to their qualifications for advancement and assignment to duty as a Foreign Service officer. The governance of the school is to be set forth in rules and regulations prescribed by the Secretary of State. The school is under the direction of the Foreign Service School Board.

The Foreign Service School Board.—The duties of this board are to act in all matters concerning the functions of the school with the approval of the Secretary of State; to select the chief instructor of the Foreign Service School from among the officers of the Foreign Service with the approval of the Secretary of State; and in its discretion to select other instructors from among the qualified officers of the Department of State, the Foreign Service, the executive departments of the government, and other available sources. The board is composed of the Under Secretary of State, an Assistant Secretary of State to be designated by the Secretary of State, the Assistant Secretary of State formerly known as the Director of the Consular Service, the chairman of the Executive Committee of the Foreign Service Personnel Board, and the chief instructors of the Foreign Service School.

Reclassification.—The practical results of the putting into effect of the provisions of the Rogers Act and Executive Order number 4022 may be seen from the following table which shows the reclassification from the old to the new status with salaries.

Former Classification	Former Salary	New Classification as Foreign Service Officer	New Salary	No. in Grade as of Oct. 1, 1925
Secretary, Class One (Counselor of Emb.)	4,000	Class One	9,000	23
Consul General, Class One	12,000 *	Class One	9,000	
Consul General, Class Two	8,000	Class One	9,000	
Secretary, Class One (Counselor of Leg.)	4,000	Class Two	8,000	23
Consul General, Class Three	6,000	Class Two	8,000	
Secretary, Class One	4,000	Class Three	7,000	51
Consul General, Class Four	5,500	Class Three	7,000	
Consul General at Large	5,000	....	5,000	
Secretary, Class Two	3,625	Class Four	6,000	56
Consul General, Class Five	4,500	Class Four	6,000	
Consul, Class One	8,000 *	Class Four	6,000	
Consul, Class Two	6,000	Class Four	6,000	
Consul, Class Three	5,000	Class Four	6,000	
Chinese Secretary	5,500	Class Four	6,000	
Japanese Secretary	5,500	Class Four	6,000	
Turkish Secretary	5,500	Class Four	6,000	
Consul, Class Four	4,500	Class Five	5,000	64
Secretary, Class Three	3,000	Class Six	4,500	78
Consul, Class Five	4,000	Class Six	4,500	
Chinese Asst. Secretary	4,000	Class Six	4,500	
Japanese Asst. Secretary	4,000	Class Six	4,500	
Turkish Asst. Secretary	4,000	Class Six	4,500	
Consul, Class Six	3,500	Class Seven	4,000	97
Secretary, Class Four	2,500	Class Eight	3,500	100
Consul, Class Seven	3,000	Class Eight	3,500	
Consul, Class Eight	2,500	Class Nine	3,000	1
Consul, Class Nine	2,000	Class Nine	3,000	
Vice-Consul of Career	2,500-2,750-3,000	Unclassified	3,000	153
Consular Assistants	1,500-2,500	Unclassified	2,500	
Interpreters	2,000	Unclassified	2,000	
Student Interpreters	1,500	Unclassified	1,500	

* Section 8 of the Rogers Act provides "that consuls general of class one and consuls of class one holding office at the time this Act takes effect shall not, as a result of their recommissioning or reclassification suffer a reduction in salary below that which they are then receiving: *Provided, however,* that this provision shall apply only to the incumbents of offices mentioned at the time this Act became effective."

DIPLOMATIC PERSONNEL

By Margaret deForest Hicks

Political Expert, War Department General Staff

During the year 1925, three hundred and four persons took the examinations for appointment as officers in the United States Foreign Service. Of this number thirty-nine were passed. Of the thirty-nine, thirty-seven have successfully completed the Foreign Service School course in the Department of State and have been commissioned as Foreign Service officers unclassified. One woman was among those commissioned.

Promotion during the year from class to class has been steady and satisfactory and no less than five Foreign Service officers have been appointed to the grade of Minister. It is considered that the provisions whereby the new service has come into being have proved notably successful during the year 1925.

EUROPEAN DEBTS AND CLAIMS

By Charles G. Fenwick
Professor at Bryn Mawr College

FRENCH DEBT

Conference on Allocation of German Payments.—During January, 1925, the United States became a party to the financial arrangement between Germany and the Allied Powers under the terms of the Dawes Plan. Myron T. Herrick, Ambassador to France, Frank B. Kellogg, Ambassador to Great Britain and Colonel James A. Logan, unofficial observer of the Reparation Commission, were instructed to represent their government at a conference of finance ministers at Paris, January 7, to allocate reparation payments from Germany. January 14 the three American representatives signed an "Agreement Regarding the Distribution of Dawes Annuities." The Senate promptly requested the Secretary of State to present the text of the agreement. In a letter of explanation (February 3) he said:

"The conference of Finance Ministers held at Paris was for the purpose of reaching an agreement as to the allocation of the payments expected through the operation of the Dawes plan. In view of the inclusive character of these payments, it was necessary for the United States to take part in the conference in order to protect its interests. The conference at Paris was not a body, agency or commission provided for either by our treaty with Germany or by the Treaty of Versailles. In taking part in this conference there was no violation of the reservation attached by the Senate to the treaty of Berlin. The agreement does not provide for sanctions or deal with any questions that might arise if the contemplated payments should not be made. With respect to any such contingency, the United States will be as free as it ever was to take any course of action it may think advisable."

Nevertheless Senator Ladd of North Dakota introduced (February 25) a request to the President that he refrain from action in any matter involving financial relations or military intervention "without specific prior authorization of Congress." The Senate, however, failed to sanction this intended rebuke to the Administration.

Caillaux Commission.—September 24, 1924, the French Debt Commission, headed by the Minister of Finances, Joseph Caillaux, met at Washington with the American World War Debt Commission, headed by Andrew J. Mellon, Secretary of the Treasury. The principal of the debt amounted to $3,340,516,043, which, with interest accruing since 1919, brought the total sum to approximately $4,200,000,000. Of this total sum $407,000,000 represented a debt contracted by the purchase of surplus war-supplies from the United States subsequent to the armistice. Interest upon this item, due for repayment in 1929, had been paid since 1919, amounting, at 5 per cent., to an annual sum of $20,350,000.

The first proposal made by the French Commission contemplated a series of payments beginning with $25,000,000 a year for five years and increasing thereafter to maximum payments of $80,000,000 to $90,000,000, the successive payments being spread over a period of 62 years and aggregating approximately the sum of $4,200,000,000, the present amount of the debt. This proposal was unacceptable to the American Commission, which thereupon submitted a counter-proposition calling for graduated payments over a similar period of 62 years, the aggregate of which would amount to approximately $10,000,000,000.

Difference of Point of View.—The gap between the two proposals offered little opportunity for compromise, especially in view of a desire on the part of the French Commission to insert a "safeguard proviso" by which, in the event of the failure of Germany to meet its reparation obligations to France, the latter might bring up its own obligations to the United States for reconsideration. On September 30 the French Commission submitted a new offer calling for payments spread over 68 years and aggregating approximately $6,220,000,000, beginning with preliminary annual payments of $40,000,000,000 for the first five years, $60,000,000,000 for the next seven years, and $100,000,000,000 annually thereafter for fifty-six years. This second proposal was also unacceptable to the American Commission, which accepted the French view that the preliminary payments represented the maximum capacity to pay during that period, but differed from the French view in respect to future capacity to pay.

Temporary Arrangement. — Complete failure of the negotiations was prevented by the proposal of the American Commission that a temporary agreement be entered into providing for the payment by France of $40,000,000 annually for five years. This sum would represent interest on the far larger part of the debt contracted under the Liberty Loan acts, and also would include the $20,000,000 which had been paid annually since 1919 on the debt contracted by the purchase of surplus war-supplies. As M. Caillaux had not been authorized to enter into a provisional agreement, he declined the offer formally, but was ready to take it back with him in the hope of possible approval by the French Parliament. By this means the departure of the French Commission on October 3 left the negotiations still open and expressions of mutual friendship and respect were indulged in by both delegations.

Political Considerations.—Throughout the negotiations it was clear that on both sides political considerations influenced the opinions of the two commissions as to France's capacity to pay, which was accepted as the only fair basis of negotiation. Upon this point, a relative one within certain limits, President Coolidge felt that the American tax-payer would not sanction further concessions, while M. Caillaux had in mind not only the bad state of French finances but the probable repudiation by the French tax-payer of any statesman who had put upon them so heavy a burden.

One generally recognized advantage of the provisional agreement, if approved by the legislatures of both countries, was that within the next five years the schedule of payments by Germany to France under the Dawes plan would come up for revision, and it would then be possible to figure accurately upon that item of France's capacity to pay which was at the time merely speculative. The provisional agreement was, however, rejected by the French Cabinet, which shortly after resigned. The new Finance Minister, M. Loucheur, announced on December 3, in a communication to the American Debt Commission through the French Ambassador in Washington, his "desire to have the debt question settled as speedily as possible on a basis satisfactory to both France and the United States."

Italian Debt.—Within a month of the failure of the French debt negotiations an Italian commission, headed by Count Volpi, met on November 2 with the American Debt Commission at Washington and on November 14 formally signed an agreement. This agreement fixes the total indebtedness of Italy, as of June 15, 1925, at $2,042,199,466.34 and provides that, after payment of a cash sum of $199,466.34, the remainder shall be paid in graduated annual instalments over a period of 62 years, beginning with payments of $5,000,000 for the first five years. The settlement contemplates no interest during this five-year period and only low rates, increasing from one-eighth of 1 per cent. to a maximum of 2 per cent., for the succeeding years. The explanation of the easier terms given to Italy in contrast with those required of France lies in the fact that the American Debt Commission proceeded in both cases upon the principle of capacity to pay. The low average rate of interest, less than 1 per cent. for the whole period, represents a practical cancellation of about 75 per cent. of the principal of the debt and interest charges at normal rates. Immediately following the signing of the agreement Count Volpi tendered a check for the first annual instalment of $5,000,000.

Belgian Debt.—An unusual situation was presented in the case of the Belgian debt, which at the time of settlement on August 18 amounted to $417,780,000, including arrears of interest. The debt divided itself into two parts, $171,780,000 having been contracted during the war and $246,000,000 having been contracted after the armistice. With respect to the pre-armistice debt the American Debt Commission found itself in the presence of an agreement entered into by President Wilson at the Peace Conference at Paris in 1919 in accordance with which Germany was to take Belgium's place as debtor. Art. 232 of the Treaty of Versailles, signed by the United States, provided that Germany was to "make reimbursement of all sums which Belgium has borrowed from the Allied and Associated Governments up to November 11, 1918," including interest at 5 per cent. As the United States had refused to ratify the treaty the American Debt Commission did not consider itself legally bound by the arrangement. Consequently it rejected the Belgian contention that this part of the debt should be recovered from the reparations to be paid by Germany under the Dawes plan. But the American Commission nevertheless recognized "a weighty moral obligation" which "entirely differentiates this sum from all other debts due the United States from foreign countries." In consequence interest was cancelled on this part of the debt, so that, with payments spread over 62 years, the present principal of the debt was sharply reduced. The post-armistice debt was funded by annual instalments spread over 62 years, with interest at 3½ per cent. after the tenth year. Smaller payments were arranged for the first ten years. The total interest during the period of funding thus will amount to $310,050,500, which, added to the principal of the post-armistice debt and to the pre-armistice debt upon which no interest was charged, will bring the total payment to $727,830,500. The agreement will have to be approved by Congress since the special arrangement with respect to the pre-armistice debt does not come within the terms of the law under which the Debt Commission is acting.

Other Settlements.—September 24 it was announced by Secretary Mellon that a settlement had been agreed upon with Latvia for its debt of $5,775,000. On October 9 Czechoslovakia settled for its debt of $115,000,000. Annual payments of $3,000,000 will be made for 18 years and about $6,000,000 for 44 years, interest being at the rate of 3 per cent. for 10 years and 3½ per cent. thereafter, the total payments at the end of 62 years amounting to approximately $300,000,000. Esthonia settled on October 28 for a funded indebtedness of $13,830,000. Roumania settled on December 1 for a debt of $44,591,000, payments being spread as in other cases over a period of 62 years with interest at 3 per cent. for ten years and 3½ per cent. thereafter.

United States — German Mixed Claims Commission. — August 10, 1922, an agreement was signed at Berlin by the United States and Germany providing for the establishment of a mixed commission as the agency for the determination of the amount to be paid by Germany in satisfaction of Germany's financial obligations under the "Treaty Restoring Friendly Relations" concluded by the two governments on August 25, 1921. The commission was authorized to pass upon three sets of claims: those arising from injury to person or property "within German territory as it existed on August 1, 1914"; "other claims" for loss or damage to which the United States or its nationals had been subjected since July 31, 1914, as a consequence of the war; and debts owing to American citizens by the German Government or by German nationals. The commission was to consist of one commissioner appointed by each of the two governments and an umpire to be selected by mutual agreement. On the day of the signing of the Berlin agreement the German Chancellor, to give proof of his Government's confidence in the desire of the United States to reach a fair settlement, requested that the President of the United States designate the umpire, and William Rufus Day, Associate Justice of the Supreme Court of the United States, was accordingly chosen. Upon the resignation of Justice Day, Hon. Edwin B. Parker was designated as umpire, the two other commissioners being Chandler P. Anderson for the United States, and Wilhelm Kiesselbach for Germany. The commission held its first session on Oct. 9, 1922, and continued its hearings throughout 1923, 1924 and 1925. In November, 1925, it was announced that with the completion of the "Lusitania Claims" there remained but a relatively small number and that the work of the commission would soon be at an end.

OPIUM CONFERENCE

By Charles G. Fenwick
Professor at Bryn Mawr College

Ante Bellum.—The first Opium Convention was adopted at the Hague, January 23, 1912. Called upon the initiative of the United States, the Conference took up the work unfinished at Shanghai in 1909 and elaborated an agreement under which the contracting powers pledged themselves individually to enact efficacious laws for the control of the production and distribution of raw opium and to prevent the exportation of raw opium to countries which should have prohibited or restricted its importation; moreover, they were to take measures for the gradual and efficacious suppression of the manufacture of traffic in, and use of prepared opium. Administrative duties in connection with the Convention were entrusted to the Netherlands Government. Further conferences took place at the Hague in 1913 and 1914.

Conference of 1924.—Following the establishment of the League of Nations the members of the League, in pursuance of Art. 23, c. of the Covenant, entrusted to the League the administrative duties formerly assigned to the Netherlands Government. The United States, however, not being a member of the League, continued for a time to correspond with the Dutch Government as an intermediary. On Feb. 21, 1921, the Council of the League appointed a Permanent Advisory Committee on Opium, and in 1923 the United States appointed a representative to act with the Committee in an unofficial and consultative capacity.

An International Conference on Opium met November 17, 1924, at Geneva, under the auspices of the League of Nations. This conference was called the "Second Conference" to distinguish it from a smaller group of states having far-eastern dependencies, which had met immediately before to consider its own special problems.

American Proposition.—The United States was officially represented by a delegation, authorized by act of Congress, Jan. 28, 1924, and headed by Stephen G. Porter, Congressman from Pennsylvania. The American delegation urged upon the Conference an elaborate plan as follows:—(1) The production and distribution of raw opium and coca leaves be regulated by each government so as to leave no surplus for uses not strictly medical or scientific, an exception being made in favor of the production for exportation into territories where raw opium was manufactured into prepared opium and the use of prepared opium was still temporarily permitted. (2) Separate licences were to be required for each importation and exportation of raw opium or coca leaves. (3) Measures were to be taken for the gradual and effective suppression of the manufacture of, internal trade in, and use of prepared opium. (4) To this end the Contracting Parties were to prohibit the import and export of prepared opium. (5) In countries where the use of prepared opium was still temporarily permitted imports of raw opium were to be reduced by

10 per cent. of present importation each year for a period of 10 years, at the end of which period imports were to be prohibited altogether. (6) The manufacture, sale, and use of morphine, cocaine and their respective salts and derivatives were to be limited to medical and scientific purposes. (7) Strict supervision, by means of licences, was to be exercised to this effect. (8) The manufacture and distribution of heroin was to be absolutely prohibited. (9) A permanent Central Board, representing the contracting parties, was to be established as an agency for checking the consumption of narcotics in the different countries.

Proposal Rejected.—The drastic proposals of the American delegation were, however, not acceptable to the powers with colonial dependencies or to Japan. Adjournment was taken on Dec. 16, and the conference reconvened on Jan. 19. The British delegation, having before it the practice of opium smoking in India, opposed the American plan for putting a stop to opium smoking in ten years, but offered an alternative plan for stopping this use of opium in fifteen years on condition that the fifteen-year period should begin to run from the time when China should have so far suppressed her production of raw opium as to remove the danger of opium smuggling into neighboring countries. Acrimonious interchanges followed between the heads of the American and of the British delegations.

Americans Withdraw.—February 6 the American delegation withdrew from the Conference, submitting with its letter of withdrawal a memorandum in which Mr. Porter pointed out that the reports of the committees indicated that there was no hope that the production of raw opium and coca leaves would be restricted to medical and scientific needs and that the unwillingness of certain nations to provide for the progressive reduction of the use of raw opium for the manufacture of smoking opium was a contributing factor in the problem of restricting the production of raw opium. The Chinese delegation likewise withdrew (February 7) from the Conference.

Convention Completed.—The other members of the Conference continued their sessions and (February 19) a convention was signed, and adjournment taken. The convention adopted embodied a number of the American proposals, including the plan of a Permanent Central Board, consisting of eight persons to be appointed by the Council of the League of Nations. The United States and Germany were to be invited to nominate one person to sit with the Council of the League and participate in these appointments.

In respect to the production, distribution and export of raw opium the convention went no further than to provide for "effective control"; but in respect to manufactured drugs, including medicinal opium, cocaine, morphine and other narcotics, it was agreed that effective laws should be enacted to limit their manufacture, import, sale, export and use to medicinal and scientific purposes exclusively; and persons engaged in such activities should be controlled by means of special licences. Special import and export authorizations were to be required for each importation and exportation of the designated drugs as a means of control over the international trade. The president of the Conference, Herluf Zahle, in his closing address, recognized the justice of the American proposals and agreed that the only question was as to the time when they could be realized. He then emphasized the hopeful fact that the drugs question had been "caught in the day-to-day machinery of the League of Nations" so that the conference was but the beginning of an accelerating movement.

ARMS TRAFFIC CONFERENCE

By Charles G. Fenwick

Professor at Bryn Mawr College

Invitation of League of Nations.—The Secretary General of the League of Nations (Oct. 7, 1924) wrote to Secretary of State Hughes informing him of a resolution of the Council of the League of Nations with respect to the holding of a conference on the traffic in arms and inquiring whether the Government of the United States would be prepared to take part in such a conference. In reply (Dec. 9) Secretary Hughes stated that the United States would be disposed to give favorable consideration to an invitation to such a conference. The Council of the League thereupon fixed May 4, 1925, as the opening day of the conference.

Conventions.—On that day the delegates of 44 nations, including the United States, met at Geneva. The sessions of the conference continued until June 17, and resulted in a series of instruments: (1) "Convention for the Supervision of the International Trade in Arms and Ammunition and in Implements of War." (2) "Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare." (3) "Declaration regarding the Territory of Ifni." (4) Final Act.

Categories.—The Convention divides arms, ammunition and implements into five categories: (1) Supervision and publicity of all international trade in arms by limiting export to "a direct supply to the Government of the importing State" (Art. 2); (2) Permitting export for supply to private persons if authorized by their Government by means of a license (Arts. 3, 4): (3) Requiring from each Government a statistical return of its foreign trade in arms (Art. 6); (4) Obligation to publish facts with regard to the construction of vessels for war, for export (Art. 7), and of aircraft and aircraft engines exported (Art. 9); (5) "Special zones" are defined, embracing "the whole of the continent of Africa" with certain exceptions, the Arabian peninsula, and an adjoining maritime zone, within which the export of arms is not to be permitted without an export license to be issued only upon specified conditions among which is the authorization of the authorities of the territory (Arts. 12, 13, 14).

Reservations are made from the rules laid down, in favor of Roumania, Poland, Esthonia, Finland and Latvia, by which the prohibitions of the treaty are to be suspended until such time as Russia shall accede to the present convention.

The Protocol, after reciting that the use in war of asphyxiating, poisonous and other gases has been "justly condemned by the public opinion of the civilized world" and has been prohibited in treaties "to which a majority of Powers of the world are Parties" declares that the contracting parties, "so far as they are not already Parties to treaties prohibiting such use, accept this prohibition" and, moreover, that all the signatories agree to extend the prohibition to the use of "bacteriological methods." The convention was signed by 19 countries and the protocol by 29. Provision was made for the adhesion of other states.

TREATIES COMPLETED AND RATIFIED

By Charles G. Fenwick

Professor at Bryn Mawr College

UNITED STATES-PANAMA

Smuggling of Intoxicating Liquors.—(Signed at Washington, June 6, 1924; ratifications exchanged, January 19, 1925; proclaimed, January 19, 1925.)

The treaty follows the lines of the treaty between the United States and Great Britain of Jan. 23, 1924, reaffirming the principle of the three-mile territorial limit, but containing an agreement on the part of Panama to permit the visit and search on the high seas of vessels flying its flag by the authorities of the United States for the purposes of ascertaining whether the vessel is attempting to smuggle intoxicating liquors into the United States. Seizure of the vessel for judicial condemnation is permitted upon reasonable cause found. Search and seizure must not, however, be exercised at a greater distance from shore than can be traversed in one hour by the suspected vessel. On its part the United States agrees to forego seizure of intoxicating liquors kept under seal by Panaman vessels when in its ports. Claims by Panaman vessels arising under the treaty are to be adjusted by a joint commission, or, failing that method, by recourse to the Hague Permanent Court of Arbitration.

UNITED STATES-SWEDEN

Arbitration.—(Signed at Washington, June 24, 1924; ratifications exchanged, March 18, 1925; proclaimed March 18, 1925.)

The treaty follows the lines of the treaty of April 4, 1908, between the United States and Great Britain, stipulating for the submission to arbitration by The Hague Permanent Court of Arbitration, of disputes of a legal nature or relating to the interpretation of treaties, provided, however, that such disputes do not affect the vital interests, the independence, or the honor of the contracting parties, and do not concern the interests of third states. A special "understanding" was annexed to the treaty by which the Permanent Court of International Justice might be substituted for The Hague Court of Arbitration in case the United States should become a member of the former court.

UNITED STATES-CUBA

Isle of Pines.—(Signed at Washington, March 2, 1904; ratifications exchanged, March 23, 1925; proclaimed, March 24, 1925.)

This island, lying about 50 miles off the southwest coast of Cuba, was either included in the provisions of Art. I of the Treaty of Paris, Dec. 10, 1898, by which Spain relinquished "all claim of sovereignty over and title to Cuba," or else, as was held by certain Senators, was included under the provisions of Art. II of the Treaty which ceded Porto Rico and "other islands now under Spanish sovereignty in the West Indies" to the United States. On March 2, 1901, the Platt Amendment was adopted, among its conditions being "that the Isle of Pines shall be omitted from the proposed constitutional boundaries of Cuba, the title thereto being left to future adjustment by treaty." This condition was embodied in Art. VI of the treaty of May 22, 1903, by which the United States relinquished "its authority and government in the island of Cuba" in favor of the Republic of Cuba. On March 2, 1904, the present treaty was signed, being identical with a treaty of July 2, 1903, which had expired by reason of a time limitation, and on Feb. 1, 1906, it was reported favorably by the Senate Committee on Foreign Relations. Ratification of the treaty was, however, delayed, and while the island had been under de facto Cuban government since 1902, it was not until March 13, 1925, that the Senate consented to its ratification. Art. I of the treaty recites that the United States relinquishes in favor of the Republic of Cuba all claim of title to the island, while Art. II explains that this relinquishment is in consideration of the grants by Cuba to the United States of coaling and naval stations in the island of Cuba. Art. III contains provisions designed to protect the rights and privileges of American citizens resident in the island at the time of the exchange of ratifications of the treaty.

UNITED STATES-FINLAND

Extradition.—(Signed at Helsingfors, Aug. 1, 1924; ratifications exchanged, March 23, 1925; proclaimed, March 24, 1925.)

The treaty follows the usual lines of such treaties, defining the offenses for which fugitive criminals will be extradited and prescribing certain conditions with respect to surrender and trial.

UNITED STATES-NETHERLANDS

Arbitration over the Island of Palmas.—(Signed at Washington, Jan. 23, 1925; ratifications exchanged, April 1, 1925; proclaimed, April 2, 1925.)

These differences arose in consequence of uncertainty as to whether the island, situated about 50 miles southeast of Mindanao, was included in the territory ceded to the United States by Spain in 1898. The Dutch flag was flying on the island in 1906, and thereafter American and Dutch flags were alternately raised and lowered. The United States at first refused to arbitrate, possibly in view of the fact that the island possesses a strategic value in relation to the defenses of the Philippines and might become a cable and radio station. In 1924 Governor Wood conducted an investigation into the ethnological character of the inhabitants, and a report was made to the government.

The present treaty refers the decision with respect to the sovereignty of the island to the Permanent Court of Arbitration at the Hague, the arbitral tribunal to consist of one arbitrator. Failing an agreement of the two parties upon the arbitrator the President of Switzerland is to designate him. Succeeding articles lay down the procedure to be followed before the tribunal and the powers of the arbitrator. On Oct. 5, 1925, it was announced that Judge Max Huber, a Swiss, had been designated by the two countries as arbitrator.

UNITED STATES-NETHERLANDS

Smuggling of Intoxicating Liquors.—(Signed at Washington, August 21, 1924; ratifications exchanged, April 8, 1925; proclaimed, April 8, 1925.)

The treaty is identical with that concluded with Panama (see above), except for an "understanding" annexed to it providing for the possible substitution of the Permanent Court of International Justice in place of the Hague Court of Arbitration as the agency for the settlement of claims arising under the treaty, in case the United States should become a member of the former court.

UNITED STATES-RUMANIA

Extradition.—(Signed at Bucharest, July 23, 1924; ratifications exchanged, April 7, 1925; proclaimed, April 14, 1925.)

The treaty follows the usual lines, with the exception of an annexed agreement that the death penalty will not be enforced against criminals delivered by Rumania.

UNITED STATES-OTHER AMERICAN REPUBLICS

Sanitary Code.—(Signed at Havana, Nov. 14, 1924; ratification of United States deposited with Government of Cuba, April 13, 1925; proclaimed, April 28, 1925.)

The convention follows the general lines of the International Sanitary Convention, but sets up a special Pan-American Sanitary Bureau to be used for the interchange of mortality and morbidity reports.

UNITED STATES-FINLAND

Most Favored Nation.—Agreement effected by exchange of notes, according mutual unconditional most-favored-nation treatment in customs matters. Signed, May 2, 1925.

UNITED STATES-SPAIN

Commerce.—Agreement continuing in force the commercial agreement of April 26, 1924. Effected by exchange of notes, May 2, 1925.

UNITED STATES-CENTRAL AMERICAN REPUBLICS

International Commissions of Inquiry.—(Signed at Washington, Feb. 7, 1923; ratifications deposited with the Government of the United States, June 13, 1925; proclaimed, June 15, 1925.)

The convention provides for the institution of commissions of inquiry for the investigation of questions of fact which have not been adjusted by diplomacy, to be formed from a permanent list of commissioners nominated, to the number of five each by the contracting parties. The findings of the commission are not to have the force of an arbitral award.

UNITED STATES-GREAT BRITAIN

In Respect of Canada—Smuggling.—(Signed at Washington, June 6, 1924; ratifications exchanged, July 17, 1925; proclaimed, July 17, 1925.)

The treaty provides for the exchange upon request of information concerning the clearances of vessels or the transportation of dutiable cargoes across the international boundary, or in cases where there is ground to suspect an intention to smuggle goods into the United States. Provision is also made for the mutual return of stolen property, that has come into the possession of either government, for the reciprocal exchange of information concerning persons suspected of being engaged in the violation of narcotic laws, and for assistance in the conviction of such persons.

UNITED STATES-GREAT BRITAIN

In Respect of Canada—Extradition on Account of Breaches of Narcotic Laws.—(Signed at Washington, Jan. 8, 1925; ratifications exchanged, July 17, 1925; proclaimed, July 17, 1925.)

The treaty supplements earlier treaties of extradition so as to cover the offenses mentioned in the title.

UNITED STATES-GREAT BRITAIN

In Respect of Canadian Boundary.—(Signed at Washington, Feb. 24, 1925; ratifications exchanged, July 17, 1925; proclaimed, July 17, 1925.)

The treaty supplementing the treaty of April 11, 1908, provides for measures to be taken to mark the boundary line at certain points, to maintain more effective supervision of the marks already erected, and otherwise to facilitate the determination of the boundary.

UNITED STATES-GREAT BRITAIN

In Respect of Canada—Level of the Lake of the Woods.—(Signed at Washington, February 24, 1925; ratifications exchanged, July 17, 1925; proclaimed, July 17, 1925.)

The treaty provides for an International Lake of the Woods Control Board and for the maintenance of a fixed level, so as to secure to both countries the most advantageous use of the waters of the lake.

UNITED STATES-ESTHONIA

Most-Favored Nation in Customs.—(Agreement effected by exchange of notes, signed March 2, 1925; ratification by Esthonian Parliament notified to the Government of the United States, Aug. 1, 1925.)

UNITED STATES-BELGIUM, BRITISH EMPIRE, CHINA, FRANCE, ITALY, JAPAN, THE NETHERLANDS AND PORTUGAL

(Signed at Washington, Feb. 6, 1922; ratifications deposited with the Government of the United States, Aug. 5, 1925; proclaimed, Aug. 5, 1925.)

This treaty, drawn up at the time of the Washington Conference on Disarmament, 1921-1922, had received the advice and consent of the Senate to its ratification on March 30, 1922.

UNITED STATES-BELGIUM, BRITISH EMPIRE, CHINA, FRANCE, ITALY, JAPAN, THE NETHERLANDS AND PORTUGAL

Chinese Customs Tariff.—(Signed at Washington, Feb. 6, 1922; ratifications deposited with the Government of the United States, Aug. 5, 1925; proclaimed, Aug. 5, 1925.)

The ratification of this treaty, drawn up at the time of the Washington Conference on Disarmament, 1921-1922, had been advised by the Senate of the United States, March 30, 1922, and had been carried out by the President, June 9, 1923.

UNITED STATES-GERMANY

Friendship, Commerce and Consular Rights.—(Signed at Washington, Dec. 8, 1923; ratifications exchanged, Oct. 14, 1925; proclaimed, Oct. 14, 1925.)

This treaty follows the usual lines, and was drawn up to take the place of the treaty annulled by the war.

UNITED STATES-DOMINICAN REPUBLIC

Assistance of the United States in the Collection of Customs Revenues.—(To replace the Convention of Feb. 8, 1907. Signed at Washington, Dec. 27, 1924; ratifications exchanged, Oct. 24, 1925; proclaimed, Oct. 26, 1925.)

This convention, recognizing that the treaty of Feb. 8, 1907, contains provisions no longer in keeping with present needs, modifies the control of the United States over the Dominican customs so as to facilitate the refunding of Dominican debts and to provide for expenditures upon public improvements in the Dominican Republic.

INTERNATIONAL DEVELOPMENTS IN EUROPE DURING 1925 AFFECTING THE UNITED STATES

By Roland S. Morris

Recent Ambassador to Japan

Status of International Problems.—As the year 1924 came to a close the international outlook in Europe still remained uncertain and many problems potentially dangerous were unsettled. The reparation plan, submitted by the Dawes Committee on April 9, 1924, was not accepted by the allied and German governments until August 30, 1924, and on January 1, 1925, it was still a question how the plan would work out not only technically and economically but also politically. Even with reparations temporarily solved the burden of the unadjusted inter-allied debts bore heavily on the credit of the debtor nations and tended to retard them in their economic and industrial recovery.

The League of Nations Secretariat had functioned most efficiently during the year 1924 but the Protocol adopted at Geneva during the Fall of that year looking toward stronger guarantees of security as a preliminary to disarmament was deemed too drastic for immediate ratification by the several governments. Thus the year closed with the Dawes plan as the only outstanding achievement. Even here the question of the participation of the United States in the annuities under the Dawes plan was undetermined. The contribution which had been made by American citizens to the solution of the reparations problem was acknowledged and appreciated by the European nations, but political conditions in the United States indicated clearly that the American people were still unwilling to intervene through the League of Nations or otherwise in European political controversies.

The close of the year 1924 marked the accession of Senator Borah to the position of Chairman of the Senate Committee on Foreign Relations and in the early days of January, 1925, Secretary Hughes made public his letter of resignation to take effect on March 4. Secretary Hughes had won the respect and admiration of the European Government and his retirement to private life was viewed with general regret. His administration of the Department of State aimed toward a cautious but steady advance toward closer coöperation with Europe in all matters of a non-political character. The Government of the United States was officially represented at the Opium Conference which had adjourned on December 16, 1924, to reconvene on January 16, 1925. On December 9, 1924, announcement was made of the offic participation by the United St on the international confere members and non-members League of Nations for the considering the conclusion of a convention with respect to the international trade in arms, munitions and implements of war. The year 1925 thus opened with the Dawes plan in the first experimental stage, with inter-allied debts unfunded and continuing to menace the credit of European nations; with European security unrealized and the Protocol of Geneva more or less discredited; with disarmament, dependent upon security, no further advanced than it was at the conclusion of the Washington Arms Conference.

Operation of the Dawes Plan.—It will be recalled that the plan of the Dawes Committee was accepted by the Allied and German Governments on August 30, 1924. On June 17, 1925, S. Parker Gilbert, Agent General for Reparation Payments reviewed in a carefully considered statement the working of the plan during the eight months from September 1, 1924, to the end of April, 1925, and at the close of the first year of its operation he filed a more detailed report. The results of this first year are all that could have been expected and promised continued success during the next two years. The report shows that the German budget is balanced and has a surplus for the first fiscal year of $215,000,000. The currency is stabilized with an adequate gold reserve.

The first payment of $235,000,000 has been made to the agent. Of this amount, representing one billion gold marks, over $190,000,000 were secured from the proceeds of the Dawes loans and $47,600,000 were provided from the profits of the German Railway Company. Of this amount the Government of the United States received its first annual share as provided in the Paris agreement of January 10, 1925, which allowed to the United States priority payments of $13,000,000 per year for the Rhine Army costs and for general claims. 2¼ per cent. of the German payments not exceeding $10,000,000 per year, without priority.

Viewed technically and politically [illegible] plan is pronounced by those best [illegible] judge a complete success. As [illegible] pointed out in recent comments on Mr. Gilbert's report ther may be those who can still complai that Germany pays in reparation less than she is able, but no one ca now justly contend that Germany ha failed to pay the amounts for whic she is obligated.

Activities of the League of Nations.—The Secretariat of the Leagu of Nations offered additional proo during the year 1925 of the practica and valuable contribution which it i making to world coöperation. In a brief summary of this character on cannot attempt even to outline th range and variety of its interests. One can only touch on a few achievements which have either challenged the attention or elicited the official interest of the United States.

Opium Conference.—The American delegation to the Opium Conference attended the adjourned meeting on January 16, 1925, but it was soon evident that a vital divergence of opinion existed between the British delegation and the American delegation. This resulted on February 6, in the withdrawal of the American delegation as the plan submitted by the British delegates proved wholly unacceptable to the American representatives. The Conference, however, continued without the participation of the Americans and concluded a convention on February 19, which combined many admirable provisions for the international control of narcotics. The convention further authorized the creation of a central anti-narcotic Board of Control to be appointed by the League of Nations Council and for membership in which the United States and Germany were invited to name a representative.

Conference on Traffic in Arms.—On April 9, the State Department announced that the President had designated Theodore E. Burton, Hugh S. Gibson, Rear Admiral E. T. Long, Allen W. Dulles and Brigadier General H. L. Ruggles as official American delegates to the Geneva Conference on Traffic in Arms. This Conference opened on May 4 with forty-three nations represented and on June 17 a convention was signed at Geneva by representatives of eighteen countries including the United States, Great Britain, France and Japan. A Protocol was also signed regarding chemical and bacteriological warfare. The convention provides that it shall become effective four months after its ratification by fourteen States. It divides implements of war into defined classes and provides rules governing international trade in arms to meet the requirements of each class. Each State signatory to the Protocol undertakes to recognize the illegality of chemical and bacteriological warfare in the hope its prohibition may become a recognized principle of international law.

League of Nations Council.—On September 2 the Thirty-fifth Session of the Council of the League of Nations met at Geneva. Among the reports received and considered was one on the interesting subject of survivals of slavery in the world; another on the settlement of Greek refugees; another on financial conditions in Austria-Hungary—the latter under the administration of that most able American, Jeremiah Smith; and not the least important the exceedingly embarrassing dispute over the Mosul boundary.

League of Nations Assembly.—The Sixth Assembly of the League met and elected as President a representative of the Dominion of Canada—Senator Raoul Dandurand. Paul Painlevé of France struck the dominant note of the gathering in his opening address by insisting that the problem of disarmament must await some effective agreement guaranteeing security.

The Assembly sat from September 7 to September 26. The negotiations centering around security dominated the atmosphere in which the Assembly met and no far-reaching decisions were possible until these negotiations were concluded. All observers seemed to agree, however, that the Assembly in its deliberations showed greater self-confidence, poise and efficiency than at any time in the history of the League.

In the actual work of the Assembly the United States, of necessity, played no part. There were, however, private contributions such as the grant of the Rockefeller Foundation for the League's health work; the successful efforts of Jeremiah Smith, already referred to, as High-Commissioner for Hungary; and the devoted service of Charles P. Howland as President of the Greek Refugee Settlement Commission.

One must turn to the detailed reports to appreciate the immense amount of work which the League has accomplished in all lines of international effort. It is the problem of European security as it could be worked out in and through the League which has commanded throughout the year 1925 unusual interest in the United States. And so we turn to—

EUROPEAN SECURITY AND THE LOCARNO AGREEMENTS

British Invitation.—The Geneva Protocol of 1924 indicated that the nations of the world "had lifted themselves to a new level," but to the practical-minded statesmen of Europe it seemed too radical a change to be immediately effective. It was not, however, until March 12 that the British Government definitely announced its position. On that date the British Foreign Secretary made a statement, the substance of which is contained in the following brief paragraph:

> Since the general provisions of the Covenant cannot be stiffened with advantage and since the extreme cases with which the League may have to deal will probably affect certain nations or groups of nations more nearly than others his Majesty's Government concludes that the best way of dealing with the situation is with the coöperation of the League to supplement the Covenant by making special arrangements in order to meet special needs.

Following this on March 24 the British Foreign Secretary in a statement to the House of Commons concerning the diplomatic negotiations said:

> I would outline the German suggestion as follows: Germany's interest is in the establishment of a special treaty foundation for a peaceful understanding with France. Ge
> many is prepared to consider a comprehen
> arbitration treaty and to enter into a
> pact with the powers interested in the
> Similar arbitration treaties may be
> with other States which have cor
> daries with Germany. If those

a further pact universally guaranteeing the present territorial status on the Rhine would be acceptable to Germany and the pact may further guarantee fulfillment of Articles 42 and 43 of the Treaty of Versailles.

Attitude of the Council.—During April and May diplomatic exchanges continued in the hope of reaching some agreement which would remove the fears of France, satisfy the German Government and be acceptable to the Powers less directly concerned. The needs of the situation were accentuated by the note which the Council of Ambassadors presented to Germany on June 4. After referring to the note of the previous January it pointed out "the numerous defaults of the German Government" which, "if not properly rectified would in the aggregate enable the German Government eventually to reconstitute an army moulded on the principle of a nation in arms."

Preliminaries.—This was followed on June 18 by the publication of a British White Paper, and a debate in the House of Commons on June 21 revealed to the public that progress toward a preliminary understanding was being made. Notes were exchanged between France and Germany during June and July, and on August 10 the British Foreign Secretaries conferred in London. This Conference was followed by a note to Germany made public on August 26 and embodying the French and British views.

On September 1 a conference of experts representing Great Britain, France, Germany, Belgium and Italy met at London and preliminary drafts of a security pact were submitted and discussed. It was in the midst of all these protracted negotiations that the Assembly of the League of Nations met, and as previously pointed out, the atmosphere was vibrant with coming events. The Conference of experts in London held some eight sessions and then adjourned to report to their govern- ents whose leading representatives gathered at Geneva.

ting at Locarno.—On October ying the adjournment of the of the League of Nations the Foreign Secretaries and other leading representatives of the German, Belgian, British, French, Italian, Polish and Czechoslovak Governments met in historic conference at the town of Locarno in Switzerland and after ten days of frank exchange of views and adjustment of differences united in common agreement as to "the means for preserving their respective nations from the scourge of war and for the providing for the peaceful settlement of disputes of every nature which might eventually arise between them."

Final Act.—On October 16 the Final Protocol, the Security Pact and the other Agreements were duly initialed by the respective representatives and submitted to the governments for ratification. They were all duly ratified and on December 1 the plenipotentiaries gathered in the Foreign Office at London and with a characteristic touch of modernism in the face of "movie" cameras formally executed them. As a final act a telegram was sent to the Mayor of the little town of Locarno, thus rescued from comparative oblivion, thanking him for the community's gracious hospitality.

The Documents. — The Locarno Agreements viewed in their technical diplomatic aspect consist of "The Final Protocol" with five treaties or conventions and a collective note to Germany attached. The first is a Treaty between Germany, Belgium France, Great Britain and Italy ("The Security Pact") designated "Annex A"; the second is an Arbitration Convention between Germany and Belgium designated "Annex B"; the third is an Arbitration Convention between Germany and France designated "Annex C"; the fourth is an Arbitration Treaty between Germany and Poland designated "Annex D"; and the fifth is an Arbitration Treaty between Germany and Czechoslovakia designated "Annex E." The significance of these documents will be determined by their operation in the years to come. It will be sufficient to quote from "The Final Protocol" the following statement ratified by the Governments concerned as the considered expression of the object which they seek to accomplish through the Treaties:

> The representatives of the Governments represented here declare their firm conviction that the entry into force of these treaties and conventions will contribute greatly to bring about a relaxation of the moral tension between nations, that it will help powerfully toward the solution of many political and economic problems in accordance with the interests and sentiments of peoples and that in strengthening peace and security in Europe it will hasten on effectively the disarmament provided for in Article 8 of the Covenant of the League of Nations.

STEPS TOWARD DISARMAMENT

Invitation to a Conference.—The Treaties of Locarno had in view immediate steps for world-wide disarmament and the formal execution of the Treaties at London on December 1 was promptly followed by action by the Council of the League of Nations. The thirty-seventh meeting of the Council was held early in December and under authority of a resolution of the Assembly adopted in September the Council put in motion the machinery for the calling of a World Conference on disarmament. An examination was made of the work of the subcommittees of the League of Nations which have been working for a considerable period to lay the ground-work for such a complicated world enterprise. It was decided by the Council to convoke a special disarmament committee to meet at Geneva on February 15, 1926, to clear the way and to prepare practicable suggestions for the consideration and action of an International Disarmament Conference to be held later under the auspices of the League of Nations. Invitations were promptly issued to members and non-members of the League of Nations to attend this preliminary conference. The invitation extended to the United States is now before President Coolidge awaiting his action.

INTER-ALLIED DEBTS

Relation to Reparations.—For several years the subject of inter-allied debts had been linked up with the problem of reparations. The adoption of the Dawes plan in 1924 snapped this link and left the debts to be dealt with separately. It will be recalled that the Dawes plan was submitted on April 9, 1924, and went into operation on September 1 of that year. It was not, however, until May 16, 1925, that the Government of the United States issued an informal statement covering the progress which had been made in the adjustment of the debts due by the states of Europe to the United States. From this statement it appeared that of the fourteen nations which had borrowed from the United States during the World War and subsequent to the Armistice five, viz.: Great Britain, Hungary, Finland, Lithuania and Poland had completed funding arrangements with the American Debt Commission. It was pointedly suggested that the remaining nine should consider definite arrangements for similar adjustments. The nations thus called upon were:

France	owing.....	$3,924,867,744.17
Italy	"	2,080,780,147.21
Belgium	"	459,919,945.04
Greece	"	16,468,846.66
Roumania	"	44,451,166.95
Czechoslovakia	"	117,374,917.61
Jugoslavia	"	64,058,338.68
Esthonia	"	17,794,020.28
Latvia	"	6,225,873.26

It was further announced on June 1 that debt funding negotiations would be welcomed in Washington but under no circumstances would the American Debt Commission consider going abroad. During the sessions of the third Congress of the International Chamber of Commerce held at Brussels from June 21 to 26 a tendency again developed to view the inter-allied debts thus made as linked with reparations and dependent on the successful operation of the Dawes plan.

American Attitude. — John W. O'Leary, President of the Chamber of Commerce of the United States, presented with singular ability the American point of view. "He repudiated the implication that the United States was seeking to profit by the distress of Europe, declared that the prosperity of the United States was bound up with the prosperity of the rest of the world and insisted that the first step in the restoration of international confidence was the assurance that the financial obligations of nations would be met. The resolutions finally adopted expressed confidence in the Dawes plan as the most constructive development of the period under review and reaffirmed the declaration of the previous Rome conference that 'while it is true the allied debts created by the World War are obligations undertaken in good faith and do not admit of repudiation, nevertheless as they were contracted in the common cause in a period of tremendous sacrifice of life and property the proper factor for any adjustment should be the present and probable future ability of each debtor to pay.'" This resolution appears to have expressed accurately the policy of the American Government in approaching the debt settlements and also reflected the attitude of responsible American interests.

Preparations for Conferences.—During the summer and fall events moved rapidly. From June 25 to June 30 preliminary discussions were held in reference to the Italian debt. On June 26 there was a preliminary conference on the debts of Jugoslavia. On June 30 the French Cabinet decided to proceed with the funding of the French debt to the United States. On the same date the Department of State announced that the Belgian debt commission was due in August. July 7, announcement was made that Czechoslovakia would proceed at once with the United States debt negotiations. August 18 agreement was reached on the funding of the Belgian debt. The entire debt of $727,830,500 was divided into pre-armistice and post-armistice debt the latter amounting to $556,050,500 to be paid in annual installments extending over sixty-two years with interest at 3½ per cent. The pre-armistice debt constituting the balance was also to be paid in sixty-two installments but interest was to be remitted. August 24, negotiations in London on the French debt to Great Britain resulted in an agreement to pay £633,000,000 in annual installments of £12,500,000 r sixty-two years, *but* with a proviso that Great Britain "must receive from France proportionate and *pari passu* payments to any she may eventually make to the United States in settlement of her war debt."

Conference with France.—A month later (Sept. 2), the French Debt Commission met the American Debt Commission for the first time. The negotiations roused great public interest because of the presence of the French Finance Minister M. Caillaux whose vivid personality and dramatic career added the needed touch of color to what was otherwise the drab discussion of figures and facts. Negotiations were continued until October 3 when the French Commission sailed for home, the chairman, M. Caillaux, bearing with him an offer of the American Commission to accept $40,000,000 annually for five years as interest in full on present principal and accrued interest of the debt with the understanding that at the end of five years the debt question should be reopened. This offer was subsequently refused by the French Government and so as the year 1925 closes the French debt remains unadjusted and French credit has suffered a temporary setback.

Czechoslovakian Agreement.—On October 9 the Czechoslovakian war debt was adjusted on the basis of $115,000,000 payments to be spread over the now familiar period of sixty-two years. This was followed on October 28 by the settlement of the Esthonian debt on the basis of a cash payment of $1,441.88 and the balance of $13,830,000 to be paid in annual amounts for the same conventional period of sixty-two years.

Italian Agreement.—On November 2 after negotiations lasting for ten days a singularly lenient agreement was reached on the Italian debt which was signed on November 14. The debt was fixed at $2,042,199,466.34, of which $199,466.34 was to be paid at once and the remainder was funded at specified rates of interest in order to bring the total payments at the end of sixty-two years to $2,407,000,000. With the funding of the Latvian debt and the delivery by the Lithuanian Government of $6,000,000 in Lithuanian bonds to the United States the American Debt Commission could look back on a year of earnest effort which gave promise of fruitful results in the reconstruction of European finance. All of the debt agreements are now before Congress for ratification.

Summary.—President Coolidge in his message to Congress thus summed up the present state of the debt settlements:

> Those made with Great Britain, Finland, Hungary, Lithuania and Poland have already been approved by the Congress. Since the adjournment, further agreements have been entered into with Belgium, Czechoslovakia, Latvia, Esthonia, Italy and Roumania. These eleven nations, which have already made settlements, represent $6,419,528,641 of the original principal of the loans. The principal sums, without interest, still pending are the debt of France, of $3,340,000,000; Greece, $15,000,000; Jugoslavia, $51,000,000; Liberia, $26,000; Russia, $192,000,000, which those at present in control have undertaken openly to repudiate; Nicaragua, $84,000, which is being paid currently, and Austria, $24,000,000, on which by act of Congress a moratorium of 20 years has been granted. The only remaining sum is $12,000,000, due from Armenia, which has now ceased to exist as an independent nation.

THE WORLD COURT

Official Report.—August 15, 1925, the Permanent Court of International Justice issued the first volume of a new series of official publications to be known hereafter as "Series E" and which is intended to consist of an annual report of the Court's activities. The Court decided "that the volume to be issued on August 15, 1925, should cover the whole of the Court's activities from January, 1922, up to June 15, 1925, and that subsequent volumes should cover the twelve months' period finishing on June 15 each year." There is thus available to anyone desiring a summary of the personnel, rules, opinions and decisions of the Court a carefully prepared official volume containing all the desired information.

Judges.—In noting the development of the Court and of its activities during the year 1925 it is interesting to observe that of the fifteen Judges and Deputy Judges now qualified ten are from European countries as follows: Spain, Italy, Great Britain, Switzerland, Holland, Denmark, France, Norway, Roumania and Jugoslavia; one is from South America; one is from Cuba; one is from the United States; one is from Japan and one from China.

Summary of Sessions.—The Sessions and the character of the cases submitted to the Court are thus briefly stated in the Introduction to the Court's Summary of Judgments and Opinions set forth in the first Annual Report:

> The Court met for the first time from January 30th to March 24th, 1922. At this session, which was called a 'preliminary' session, the Rules of Court were prepared. The first ordinary Session, which began on June 15th, 1922, ended on August 12th of that year. It was devoted to the preparation of Advisory Opinion No. 1, regarding the appointment of the Dutch Workers' Delegate to the third International Labour Conference, and of Advisory Opinions Nos. 2 and 3 regarding the competence of the International Labour Office in agricultural matters. The second (extraordinary) Session held from January 8th to February 7th, 1923, was convened for the purpose of giving an opinion on the Nationality Decrees in Tunis and Morocco (French Zone) promulgated on November 8th, 1921. At the third (ordinary) Session (June 15th, 1923, to September 15th, 1923) the Court dealt with the 'Wimbledon' case, its first judgment; it also gave a reply to Request No. 5, for an advisory opinion in regard to the status of Eastern Carelia, and delivered Opinions No. 6, concerning the German settlers in Poland, and No. 7, concerning the acquisition of Polish nationality. The fourth (extraordinary) Session, held from November 12th to December 6th, 1923, was devoted to Advisory Opinion No. 8 concerning the question of the delimitation of the Polish-Czechoslovak frontier (the Jaworzina question). At the fifth (ordinary) Session (June 16th, 1924, to September 4th, 1924), the Court delivered Judgments No. 2, concerning the Mavrommatis Palestine Concessions (the question of jurisdiction), and No. 3, concerning the interpretation of paragraph 4 of the Annex following Article 179 of the Treaty of Neuilly. During the sixth (extraordinary) Session (January 12th, 1925, to March 26th, 1925) the Court gave a judgment (No. 4) in regard to the interpretation of Judgment No. 3, and also Judgment No. 5, in regard to the Mavrommatis Jerusalem Concessions, which had been reserved under Judgment No. 2 for decision on the merits; it also delivered Advisory Opinion No. 10 in regard to the exchange of Greek and Turkish populations. The seventh (extraordinary) Session (April 14th to May 16th, 1925) was devoted to Advisory Opinion No. 11, concerning the Polish postal service at Danzig.

Addition of Documents.—A study of the above summary will reveal the variety and the importance of the questions which have been submitted to the Court since it first met for organization on January 20, 1922. In addition to the *Annual Report* the Court issues from time to time as official publications *Collection of Judgments* (Series A); *Collection of Advisory Opinions* (Series B); *Acts and Documents Relating to Judgments and Advisory Opinions Given by the Court* (Series C); *Acts and Documents concerning the organization of the Court* (Series D) and finally the *Annual Reports of the Court* to be known as Series E.

Bases of the World Court.—In Series D among the Acts and Documents of the Court is a volume (No. 4) which is of great significance to the student and observer of the development of international justice as a substitute for force. This volume 4 of Series D consists of extracts from international agreements affecting the jurisdiction of the Court. It is indeed impressive to note how the Court has been in the minds of statesmen and Foreign Offices as the obvious recourse in the event that differences cannot be composed in the ordinary course of diplomatic negotiation. It is the compulsory jurisdiction of the Court voluntarily accepted in numberless treaties and agreements between states which justifies the hope of its increasing influence. Any one who seeks to judge justly the present value and future influence of the Permanent Court should study carefully the previously published extracts and the Addendum in this first Annual Report.

Extract of Jurisdiction.—As typical provisions of these very recent agreements note Article VII of the Commercial Convention between Czechoslovakia and the Netherlands which provides (*Report* page 392), "Any dispute in regard to the interpretation, application or execution of the present Convention which cannot be settled between the High Contracting Parties by the diplomatic channel shall be submitted to the Permanent Court of International Justice." Or again as another type note Article 6 of the Treaty of Defensive Alliance between Esthonia and Latvia which provides (*Report* page 393) "All disputed questions which may arise between the High Contracting Parties and which cannot be settled by diplomatic means shall be laid before the Court of International Justice or submitted to international arbitration."

Reservation by the United States.—Of particular interest to American citizens is the exchange of notes which took place between the American and Dutch Governments on the day of the signing of the Convention respecting the regulation of the liquor traffic. This exchange was to the effect (to quote the Court's note at page 204 of the Report) "that in the event of the adhesion of the United States to the Protocol of December 16, 1920, under which the Permanent Court of International Justice was created at the Hague, the United States Government would not be averse to considering a modification of the said Convention or the making of a separate agreement providing that claims mentioned in Article IV of that Convention which cannot be settled in the way indicated in the first paragraph of that article shall be referred to the Permanent Court of International Justice instead of the Permanent Court of Arbitration."

Movement in the United States.—The year 1925 is also marked by a growing sentiment among the people of the United States that their government should adhere to the Protocol establishing the Court with the Harding-Hughes reservations. As early as March 3, 1925, this sentiment found expression in a Resolution of the House of Representatives voicing its cordial approval of the Court, its earnest desire that the United States should give early adherence to the Protocol and expressing its readiness to participate in such legislation as will necessarily follow. The earnest desire thus expressed is shared by President Coolidge and in the closing days of 1925 the debate on the World Court was well under way in the Senate with all signs pointing to our early adherence.

UNOFFICIAL CONGRESSES AND CONFERENCES

American Travel to Europe.—No study of European affairs and their effect on American life and interests would be complete without a brief reference to the increasing personal contacts and associations between the peoples of Europe and the United States observable during the past year. Travel of Americans to Europe assumed unprecedented proportions. It was not confined to the conventional summer tourist but continued during the fall and winter months. Many as usual were bent on sightseeing and relaxation but large numbers traveled abroad for serious study and observation. The effects of this American exodus to Europe on the manners and outlook of the American people cannot as yet be adequately measured. Accompanying this movement were many unofficial international gatherings which met in various parts of Europe to exchange views on common interests and problems. Thus the World Federation of Educational Associations met at Edinburgh on July 19, the International Council of Nurses at Helsingfors on July 23; the World Alliance for International Friendship through the churches at Stockholm on August 6; the Institute of International Relation at Geneva on August 9; the Universal Church Congress on August 19; the Labor and Socialist International on August 22; and the First Child Welfare Congress closed at Geneva on August 28, while the International Telegraph Congress opened on September 1.

European Travel to the United States.—Nor is this movement all one way. The Institute of Politics, at Williamstown, again gathered a group of earnest students to discuss world affairs under the leadership of European scholars and statesmen. On October 1 the Interparliamentary Union met at Washington and brought to the United States many distinguished representatives of European countries.

Significance of the Year.—As the year 1925 passes from the contemporary chronicles into the jurisdiction of the historian it is not unlikely that it will mark a significant date in the progress of the world. The continuing success of the Dawes plan, the increasing and internationally helpful influence of the League of Nations, the Locarno Treaties, the definite and practical steps which the League has taken moving toward world disarmament, the inter-allied debt settlements and the consequent reëstablishment of European credits, the widening jurisdiction of the World Court and its growing prestige and the enlarging personal and social contacts between the peoples of differing nationalities all combine to renew our confidence in a world steadily and surely moving toward an organized peace.

LATIN-AMERICAN RELATIONS

By Graham H. Stuart

Associate Professor of Political Science, Stanford University

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PAN-AMERICAN RELATIONS

Hughes' Declaration. — The year opened with an auspicious keynote sounded by Secretary of State Charles E. Hughes in his radio address of January 20, 1925, on the relations of the United States with Latin-America, when he declared: "We wish to have prosperous and independent neighbors with whom we can deal in peace to our mutual advantage. We harbor no thought of aggression upon anyone. . . . Our historic policy which we call the Monroe Doctrine is itself designed to thwart measures of aggression." Nor were these words merely sonorous phrases tuned to the occasion. The withdrawal of the marines from the Dominican Republic in September, 1924, the promise to withdraw from Nicaraugua early in 1925, and from Haiti as soon as internal peace and stability seemed assured, proved the sincerity of the intentions.

Other factors contributed to the expectation of an increase in the spirit of cordiality and coöperation between the United States and the Latin American republics. Mexico was again on friendly diplomatic relations with Washington; and Chile and Peru, through the good offices of the United States, were on the road to a settlement of their long contineud feud over the Tacna-Arica provinces.

Pan-American Conferences.—If as the year progressed the diplomatic horizon became somewhat overcast, the outlook was kept bright by the continuous efforts for Pan-American solidarity and the successful results of many Pan-American conferences.

The third Pan-American Scientific Congress held meetings at Lima, Peru, from December 20, 1924, till January 6, 1925; conjointly with it a Pan-American Conference on Uniformity of Specifications, and the second Pan-American Conference of Women. The Pan-American Highway Conference was held at Buenos Aires in May; and the Pan-American Educational Conference took place at Santiago, Chile, in September.

The conventions of some previous conferences were made effective in 1925. On February 23 the United States Senate ratified the Pan-American Sanitary Code which had been signed by the representatives of eighteen American republics at Havana on November 14, 1924; and the following day ratified the Inter-American Trade Mark Convention, signed by eighteen republics at Santiago, Chile, April 28, 1923.

Mexican Land Controversy.—On November 30, 1924, General Plutarco Elias Calles was inaugurated president of Mexico for four years, at a joint session of the Mexican Congress. A hearty cablegram of congratulations from President Coolidge was an augury of friendly relations between the two neighbors. Less than a month later Señor Manuel C. Tellez after a long and successful diplomatic career in Canada, Japan, and China was appointed ambassador to the United States. The appointment of James R. Sheffield as our ambassador to Mexico was confirmed January 25, 1925.

The principal problem facing the new administration in Mexico was the land question. The land law of 1915 passed by the Carranza régime, but not put into effect until Obregón became president, permitted villages to receive land to the extent of approximately 12½ acres for each male citizen. The owners of land so appropriated and distributed were to be paid by government bonds and at a price 10 per cent. above the assessed valuation. Large transfers of such lands were made by President Obregón, and President Calles continued that program.

Unfortunately the dispossessed owners found it impossible to realize immediately upon the securities exchanged, and their future value was somewhat uncertain. Some Americans among those owners appealed to the government of the United States to protect their interests. Ambassador Sheffield was summoned to Washington to confer with President Coolidge and Secretary of State Kellogg; the latter, in a communication to the press (June 12) declared that conditions in Mexico were unsatisfactory, and that the United States expected Mexico to indemnify Americans for property illegally taken. "The government of Mexico is now on trial before the world and the American government will continue to support the government of Mexico only so long as it protects American lives and rights and complies with its international obligations."

Reaction of Mexico.—In reply President Calles declared, June 14, that "the statement that the government of the United States will continue to support he government of Mexico only so long as it protects American interests and lives, and complies with its international obligations, embodies a threat to the sovereignty of Mexico that she cannot overlook and rejects with all energy." He then intimated very clearly that Mexico wished to be permitted to solve her domestic problems in her own way.

The spirited rejoinder of President

Calles seemed to meet with almost unanimous approval among Mexican political leaders, and ex-president Obregón, and Secretary of Industry and Commerce, Luis Morones, the leader of the labor forces, congratulated him warmly. The repercussion spread to South America, and the Latin American Union from its headquarters at Buenos Aires declared that Secretary Kellogg's statement showed "that want of respect for the sovereignty of our peoples which is characteristic of the White House" and extended to President Calles "its warmest sympathy." In the United States the exchange of public statements was criticized chiefly on account of the violence done to the ordinary canons of diplomatic procedure. It was felt that friendly governments ought to make their protests first through the ordinary diplomatic channels rather than by public declarations. For whatever reason, in his message to Congress, read at its opening on September 1, President Calles announced that cordial relations had been restored.

Waters of International Rivers.—Except for this rather spectacular diplomatic flurry the relations between the two countries were continuously friendly. In January, President Coolidge designated three special commissioners to coöperate with representatives of Mexico in a study regarding the equitable use of the waters of the Rio Grande south of Fort Quitman, Texas. The United States also proposed to offer Mexico water for irrigation in exchange for affecting the flow of the Colorado River by erecting Boulder Canyon Dam. Negotiations proceeded favorably between the two countries towards an agreement to abolish drug smuggling across the international boundary.

Debt Refunding.—In his message to the Congress on September 1, President Calles recommended that the Lamont—de la Huerta Mexican debt refunding agreement of 1922 be modified, and Finance Minister Pani came to New York to secure the desired modifications. A new arrangement was drawn up and approved by President Calles and his cabinet on November 11, which takes care of the arrears for 1924 and 1925 and begins a new schedule of payments on January 1, 1926.

RELATIONS WITH THE CARIBBEAN COUNTRIES

Cuba.—An outstanding event in the diplomatic relations between the United States and Cuba was the approval by the United States Senate, March 13, 1925, by a vote of 63 to 14, of the Isle of Pines Treaty relinquishing in favor of Cuba all claim of title to the island. The island by the Platt Amendment was omitted from the constitutional boundaries of Cuba, and its title left to future adjustment by treaty. Such a treaty was signed July 2, 1903; since it was not acted upon, a new treaty almost identical in terms was signed March 3, 1904. Although its passage was recommended by several Presidents and Secretaries of State of the United States, and on three occasions the Senate Committee on Foreign Relations reported it favorably, consent to ratification was not obtained until almost twenty-three years after signature. Inasmuch as the Cuban government had been exercising jurisdiction over the island throughout this period, the belated action of the Senate merely made *de jure* the existing *de facto* situation.

With a view to better mutual understanding and more friendly coöperation, President-elect Gerado Machado y Morales visited the United States in April, 1925, and was cordially received by President Coolidge and Secretary Kellogg. In one of his public addresses, the visitor declared that he intended to come back after completing his term of office, and seek the aid of the United States to get rid of the Platt Amendment. The sentiment of the President-elect was well received by the press of Cuba.

Santo Domingo.—In the Dominican Republic a detachment of United States Marines had been maintained since 1916. A new condition was brought about by the withdrawal of the last of the marines in September, 1924. The situation was legalized by the Senate's consent to the agreement January 20, 1925. At the same time a new loan convention was approved, to take the place of that contracted under President Roosevelt's famous convention of 1907. As the loan would soon be paid off the new agreement provides a $25,000,000 loan to refund all outstanding bonds and create a surplus of $10,000,000 for immediate public improvements. The only American official retained under the new convention is the general receiver of customs. Although a so-called Pact of Honor was organized in the Dominican Chamber of Deputies against accepting the new agreement, the convention was duly approved, May 25, 1925.

Haiti.—In Haiti the United States still maintains a brigade of marines under the command of the American High Commissioner, General John H. Russell. In his annual report, January 1, 1925, General Russell commented favorably upon conditions there. Public order is now largely under the control of the *gendarmerie d'Haiti*, and excellent progress has been made in railway construction and irrigation projects. Dr. George C. Payne of the Rockefeller Foundation was engaged in a medical survey; and Dr. George F. Freeman was aiding in the establishment of a Central School of Agriculture, and vocational, industrial and rural farm schools.

In his latest report, Dr. W. W. Cumberland, Financial Advisor-General Receiver of Haiti, announces a gratifying improvement in trade during the past three years with an excess of exports over imports and expenditures maintained well within receipts.

Central America.—Nicaragua has just given a striking example of the potent influence of American soldiers on the spot. A force was placed there in 1912 nominally as legation guards. When it was planned to withdraw them in January, 1925, at the express request of President Solorzano they were permitted to remain until August when, it was hoped, the Nicaraguan constabulary would be sufficiently well organized to maintain order. Hardly had the marines departed before Ex-President Chamorro began a revolution to restore the Conservative party to power. He was so successful that President Solorzano agreed to appoint him Commander in Chief of the army, backed by a Conservative cabinet. The Liberal party has asked that the United States send back the marines.

Republic of Panama.—The Panamanian government also asked that the United States intervene to maintain order in Panama City during October. Riots seem to have been incited by agitators for lower rents. About 600 American soldiers were sent on October 12, and the sight of bayonets and machine guns was sufficient to restore order. All American troops were back in the Canal Zone by October 23.

RELATIONS WITH SOUTH AMERICA

Tacna-Arica Arbitration. — The only serious diplomatic problem between the United States and the South American republics in 1925 was the attempt to settle the Tacna-Arica dispute between Peru and Chile. The ownership of this territory should have been settled by a plebiscite in 1894, ten years after the ratification of the Treaty of Ancon; it has been called the Alsace-Lorraine of South America. President Harding offered his good offices in 1922, and Peru and Chile agreed to allow the President of the United States to determine whether or not the plebiscite should at last be held. President Coolidge accepted the position of arbitrator after President Harding's death, and handed down his decision March 4, 1925, declaring that the plebiscite should be held.

The award was bitterly criticized in Peru; April 2, the Peruvian ambassador at Washington handed a memorial to the State Department contending that the judgment was unfair, and asking for additional guarantees to its proper carrying out. President Coolidge replied immediately insisting that the award remain unchanged.

The plebiscite was to be supervised by a commission of three—a Chilean, a Peruvian, and an American presiding officer. President Coolidge appointed General John J. Pershing as the American member, Chile appointed Señor Augustin Edwards, and Peru named Dr. Manuel de Freyre Santander. At the first formal meeting of the Plebiscitary Commission in Arica, August 5, General Pershing assured the inhabitants that every qualified voter would have an opportunity to cast his vote freely and have it fairly counted.

The Commission had scarcely made a survey of the ground before complaints were made by the Peruvians against Chilean attempts to hinder a fair vote. Hostility towards the American intention of carrying out the award in accordance with its letter and spirit was soon evident among the Chilean population. General Pershing was finally forced to ask for the removal of the Chilean military garrison, a reduction of the police force, and various other changes, in order to obtain a free vote. Although his demands were approved by the Commission, November 2, new difficulties soon arose; November 21, Señor Edwards withdrew from the Commission, declaring his instructions compelled him to abstain "from all proceedings except those relating strictly to registration and voting."

The shooting of a Chilean carabineer and the accusation made by the Chilean commander that the members of the Peruvian Boundary Commission were responsible threatened the disruption of that board also. Except for the return to Peru of the province of Tarata made on September 1, the ultimate carrying out of the award seems in a rather doubtful situation—particularly since the Chileans have practically demanded the elimination of Pershing.

Brazil.—The members of the American naval mission to Brazil returned in February, 1925, after two years' work. In a statement made by Commander Beauregard it was emphasized that the purpose of the American mission was not to persuade the Brazilians to build more ships, but to bring the Brazilian navy into line with the highest standards of efficiency now prevailing. As a result of the acceptance by Brazil, Peru and Colombia of the good offices of Secretary Hughes, a settlement of their boundary difficulties in the Amazon region was effected in the State Department on March 4, 1925.

The recent coffee policy of Brazil has not been entirely satisfactory to American merchants; and American bankers noting Secretary Hoover's stand in November against foreign government's control of prices in certain commodities have been unwilling to extend loans for the coffee valorization scheme.

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AMERICAN INTERESTS IN MEXICO

Attention of Mexico Requested.—June 30 Secretary of State Kellogg made a statement to the press which drew a sharp retort from President Calles of Mexico. The statement was issued on the strength of a report on conditions in Mexico presented to the Secretary by Ambassador Sheffield; and it recited that two joint claims commissions were sitting and would in due time adjudicate claims of American citizens for properties illegally taken by Mexico and for personal injuries to American citizens.

Our relations with the Mexican Government were friendly, it was said; but while conditions had improved they were nevertheless "not entirely satisfactory" and we were looking to and expected the Mexican Government to restore properties illegally taken and to indemnify American citizens.

Attention was called to the rumors of a new revolutionary movement in Mexico, and it was pointed out that, while it was the policy of the United States to use its influence "in behalf of stability and orderly constitutional procedure" it should be made clear that the United States would continue to support the existing Government only so long as it protected American lives and American rights. "The Mexican Government," it was said, "is now on trial before the world," and while we had been patient we could not countenance violation by Mexico of its international obligations.

Mexico Irritated.—June 14 President Calles, using the same indirect form of communication, replied in sharp terms, designating Secretary Kellogg's statement as "a threat to the sovereignty of Mexico which she cannot overlook" and repudiating any right on the part of a foreign country "to intervene in any form in her domestic affairs." He then cited the various claims conventions concluded by Mexico as the "best proof that Mexico is willing to comply with her international obligations." If, it was said, the Mexican Government "is now on trial before the world, such is the case with the government of the United States as well as all those of other countries." In the sense of Mexico being on trial in the guise of a defendant, the imputation was rejected as an insult.

Effect of the Constitution of 1917.—Among the causes of the controversy was the fact that President Calles had issued in January a presidential decree advising the Mexican states of their authority to put into effect certain "seizure" features of the agrarian laws passed in pursuance of Art. 27 of the Mexican Constitution of 1917, provided compensation be made. With the reply of President Calles the immediate controversy died out as quickly as it had flared up.

Conference with Mexico.—A joint commission of representatives of the United States and Mexico met at El Paso, Texas, May 15, to open negotiations looking to the conclusion of a treaty for the prevention of drug smuggling and for the regulation of other matters of common interest along the border. Lincoln C. Andrews, Assistant Secretary of the Treasury of the United States, presided as Chairman of the joint commission. It appointed four committees to report to it upon the following questions: (1) all phases of smuggling; (2) migration and deportation problems; (3) hunting and fishing and health problems; (4) extradition and international procedure.

The reports of the four committees were presented to the joint commission on May 23. The recommendations of the commission were withheld until a formal convention could be drawn up, but on May 30 Chairman Andrews announced in Washington that the terms of the proposed treaty were stronger and broader than the treaty concluded with Canada at Washington, June 6, 1924. It was announced at the State Department (October 15) that a convention had been agreed to "in general terms," but that certain modifications were desired by both parties before it was submitted to them for ratification.

Mixed Claims Commissions.—Following closely upon the recognition by the United States of the Obregon Government in Mexico on Aug. 31, 1923, two Claims Conventions were signed, one on Sept. 8 relating to General Claims, the other on Sept. 10 relating to Special Claims. The two conventions were duly ratified and came into force upon the exchange of ratifications, March 1 and Feb. 19, 1924, respectively.

Aug. 22, 1924, the Special Claims Commission, consisting of Dr. R. Octavio, Presiding Commissioner; Hon. E. B. Perry, Commissioner for the United States, and Hon. G. Roa, Commissioner for Mexico, adopted a body of Rules and Regulations which were amended in January, 1925. After having received with it about 200 claims, the Special Claims Commission, which is to deal with losses or damages suffered by American citizens through revolutionary acts within the period Nov. 20, 1910, to May 31, 1920, inclusive, adjourned to meet in Mexico City the first week of January, 1926.

The General Claims Commission, which is to deal with all other claims of the citizens of each country against the other except those arising from revolutionary disturbances in Mexico, consists of Hon. C. van Vollenhoven, Presiding Commissioner, Hon. Nathan Miller for the United States and Hon. G. Fernandez MacGregor for Mexico. Sessions were held in Washington beginning June 2, and after completing the preliminary work connected with the filing of claims and the preparations for their presentation the Commission adjourned to meet in Washington the first Monday in February, 1926.

ARBITRATION OF THE TACNA-ARICA CONTROVERSY

Award.—President Coolidge rendered his award as arbitrator March 4, 1925, in the long-standing dispute between Chili and Peru with respect to the provinces of Tacna and Arica. His assumption of that task had been in response to a protocol of July 20, 1922, by which Chili and Peru, after reciting their inability to reach an agreement upon the unfulfilled provisions of Art. 3 of the Treaty of Peace of Oct. 20, 1883, submitted the questions at issue to the arbitration of the President of the United States who was to "decide them finally and without appeal."

Basis.—The Treaty of Peace known as the Treaty of Ancon (1881), provided that the two provinces, which had been taken possession of by Chili during the war which broke out in 1879, should continue in her possession during a further period of ten years and that "after (upon, on) the expiration of that term" a plebiscite should decide whether the two provinces should belong to Chili or Peru. The state to which the provinces should be assigned was to pay ten million pesos to the other. A special protocol was to prescribe the manner in which the plebiscite was to be carried out.

Plebiscite Prescribed.—The first question was whether under the existing circumstances a plebiscite should or should not be held. Upon this point the arbitrator decided that in spite of the lapse of time the provisions of Art. 3 of the Treaty of Ancon were still in effect and that the plebiscite should be held. No proof of bad faith on the part of Chili was found in respect to failure of the two parties during so many years to agree upon the terms of the protocol fixing the conditions of the plebiscite. The next question was to determine the conditions under which the plebiscite should be held, and on this point the arbitrator laid down specific rules defining the persons qualified to vote, providing for supervision of the plebiscite by a special Plebiscitary Commission and for the appointment of Registration and Election Boards, fixing the time of the plebiscite and prescribing other conditions. Further questions relating to the northern and southern boundaries of the two provinces as described in the treaty were decided by excluding the Peruvian province of Tarata on the north and maintaining the Peruvian provincial boundary between Arica and Tarapaca as they stood at the time of the treaty.

Peru's Objection.—Following the proclamation of the award, the Peruvian Defense Commission, representing Peru in the proceedings, entered, on April 2, representations with respect to the award on the ground that a substantial error had been committed by the arbitrator in mistranslating certain words of the treaty which, it was claimed, required that the plebiscite should have been taken promptly upon the expiration of the ten-year period. Moreover, certain specified guarantees were requested "as a condition for assuring the fairness of the voting." In reply, on April 9, the arbitrator justified the conclusion reached upon the basis of the phrase in question and observed that the determination of the conditions of the plebiscite constituted one of the questions submitted to the arbitrator.

Plebiscitary Commission.—General Pershing was appointed (March 23) chairman of the special Plebiscitary Commission which included two other members, Mr. Oscar H. Ordonez and Mr. Manuel de Freyre Santander, appointed by Chili and Peru respectively. At the same time a special Boundary Commission was appointed with Colonel J. J. Morrow as chairman, to carry out the second part of the award. Difficulties were experienced from the start owing to the charge by the Peruvian delegation that violence was being perpetrated by the Chilean authorities against Peruvian residents and even against the person of the Peruvian member of the Boundary Commission. Guarantees were requested by Peru and these were finally drawn up and accepted by the commission on Nov. 2, among them being the reduction of the military garrison at Tacna and Arica and the removal, at the request of the commission, of any of the civil authorities in the provinces.

Arrangements for Plebiscite.—The Plebiscitary Commission approved General Pershing's motion Dec. 9, 1925, naming Jan. 15, 1926, as the date for the presentation of the election law; Feb. 15 for the beginning of registration; March 15 for the ending of registration; three weeks more for all appeals, and the vote to be taken April 15. A motion by Chili to have the date of the plebiscite advanced was defeated. Thereupon Chili announced, Dec. 9, that an appeal would be taken to President Coolidge, the arbitrator. Such an appeal was provided for in the clauses of the award dealing with the Plebiscitary Commission. This placed General Pershing in a position of much difficulty. It was announced, late in December, that the state of his health was such as to make it desirable for him to return to the United States.

ORIENTAL RELATIONS OF THE UNITED STATES

By Harold Scott Quigley

Professor at University of Minnesota

Japanese Relations with China.—On January 21, 1925, Japan signed a general agreement with the Union of Soviet Socialist Republics, whereby Russia gained recognition from a second Far Eastern state, China having recognized her, May 31, 1924.

Among other things, Russia has granted to certain Japanese commercial interests a concession to exploit half the oil of northern Sakhalin. The Soviet government had previously granted concessions to the American Sinclair interests.

Return of Indemnity.—Of the $300,000 silver paid, February 21, 1925, by the Chinese government as indemnity for the occasion of the Lincheng bandit outrage of 1923, $144,000 went to Americans. President Coolidge, under date of July 16, 1925, authorized the Secretary of the Treasury to remit to the "Board of Trustees of the China Foundation for the Promotion of Education and Culture" all Boxer Indemnity payments still due the United States. The amount thus returned to China was $6,137,552.90, which, added to the amount returned in 1908 ($11,961,121.76), brought the total sum, returnable in installments, to $18,098,674.66, about three-fourths of the Boxer Indemnity to the United States.

Edgar A. Bancroft, Ambassador to Japan, who presented his credentials to the Prince Regent on November 19, 1924, died July 28, 1925, to the genuine sorrow of the Japanese nation. Charles MacVeagh of New York was appointed Ambassador to Japan and entered upon his office. Tsuneo Matsudaira succeeded Ambassador Hanihara at Washington. John Van Antwerp MacMurray entered upon his duties, in June, 1925, as Minister to China, in succession to Jacob Gould Schurman, transferred to Germany. With the appointment of M. L. M. Karakhan by the Union of Soviet Socialist Republics as its first ambassador to China, the Diplomatic Corps at Peking, on April 22, 1925, recognized his right to act as doyen. It was indicated that changed conditions had made the "Diplomatic Body," as a treaty-supporting agency, obsolete; and that henceforth matters of interest to a group of states would be taken up with the Chinese government by that group rather than by the diplomatic representatives as a whole.

Concessions to Americans.—No major issues entered into the relations between the United States and Japan during 1925. Discussions continued regarding the respective rights of American and Japanese companies, under concessions and under the Open Door understandings and agreements, respecting wireless development.

Fleet at Hawaii.—The manœuvers engaged in by the American fleet in Hawaiian waters during the summer aroused much bitter comment from a section of the Japanese public, and in July a number of organizations in Japan observed the first anniversary of the American immigration act of 1924 as "National Humiliation Day." In both countries the governments exerted themselves to prevent jingoistic propaganda.

Tariff Conference Proposed.—The policy of the United States is in brief to be the revision of treaties regarded by the Chinese as obsolete, and was applied during the year just past. It had been provided in the Customs Treaty of 1923 that a tariff conference should be convened within three months of the coming into force of the treaty for the purpose of levying additional tariffs of 2½ per cent. on ordinary goods and 5 per cent. on luxuries; and for the abolition of *likin*, the tax on inland transport. France refused to ratify the treaty until her dispute with China, the "Gold Franc Case," was settled. August 18, 1925, the Chinese Government invited the eight Powers, signatories, and the four adhering Powers, to send delegates to Peking for the conference, which met October 26, with members from each of the invited states, viz., Belgium, France, Great Britain, Italy, Japan, the Netherlands, Portugal, the United States, Denmark, Norway, Peru and Spain, in addition to the Chinese. The American delegates were Silas Strawn of Chicago and Minister MacMurray. C. T. Wang was China's chief delegate and Shen Jiu-lin, the Chinese Foreign Minister, presided over the Conference.

Outbreak in Shanghai.—Conditions in China when this Conference convened were disturbing. The nationalist sentiment, the growth of which has been marked since the Great War, and which has been stimulated by the Soviet Ambassador, flamed out in May, 1925, at Shanghai, when foreign police in the International Settlement fired upon and killed students demonstrating against the shooting by the International Police of Chinese strikers in Japanese cotton mills. Boycotts against British and Japanese trade were declared by the merchants of Shanghai, Canton and other cities, and general strikes of laborers tied up city and household services and paralyzed river and ocean transportation. American interests suffered somewhat, but recovered the losses at the expense of Japanese and British competitors against whom the boycotts and strikes primarily were directed. An investigation by the Diplomatic Corps found that the Settlement police acted hastily. Subsequently a judicial inquiry was instituted by Great Britain, the United States and Japan; Chinese sentiment, official and private, regarded this inquiry as unnecessary and Chinese cooperation was withheld.

The report of the judicial commission was published as three separate statements of the disagreeing commissioners. The reports of the British and Japanese commissioners held that the Shanghai police officials had acted properly; that of the American, Judge E. Finley Johnson, took the position that the officials had failed to appreciate the gravity of the situation and to take proper measures to meet it. The two principal officials concerned resigned.

Civil War.—The Anfu clique, in control at Peking since the fall of 1924, was not well-seated and a struggle for its overthrow broke out on the eve of the Conference. The principals in the new military scene were

Chang Tso-lin, supertuchun of Manchuria, Feng Yu-hsiang, the "Christian General," controlling northwest China, and Wu Pei-fu, military genius of the Chihli clique, influential in central China, with various other military governors.

Tariff Conference in Session.—In spite of the mixed atmosphere of nationalism and civil war, the Tariff Conference was able to take up and proceed with the agenda suggested by the Chinese Government. The agenda included the following items:

A. Tariff Autonomy.

1. Adoption by the Chinese Government of the Chinese general customs tariff. (For practical convenience a period is to be agreed upon within which to make preparations for the coming into force of tariff autonomy and the application of the Chinese general customs tariff.)
2. Abolition of likin.

B. Provisional Interim Measures.

1. Levy of an interim surtax period.
2. Levy of a surtax on articles of luxury.
3. Arrangements to unify the rates of customs duties at the land and maritime frontiers.
4. Valuation of commodities.

C. Related Matters.

1. Arrangements to ascertain the country of origin of imported goods or products.
2. The depositing of customs revenues.

Plans of Adjustment.—Three plans were laid before the Conference: (1) The Chinese plan called for the recognition of customs autonomy for China, effective January 1, 1929. For the interim period China suggested that surtaxes of 5 per cent. should be authorized upon ordinary goods and of 30 per cent. and 20 per cent. on A and B grade luxuries respectively. She, on her part, expressed the intention of abolishing likin prior to the date set for the effectuation of customs autonomy. Every item in this plan except the last went considerably beyond the revision specifically contemplated in the Customs Treaty of 1922. Nevertheless, both the Americans and Japanese accepted the first and most important feature—customs autonomy, but set up as a condition precedent to autonomy the abolition of likin. The American plan prescribed the continuance of the existing system of customs administration and provided for the allocation of the anticipated additional revenues to three purposes: (1) compensation of the provinces for the abolition of likin; (2) the refunding of unsecured debts; (3) the payment of administrative expenses of the central government.

Tariff and Likin.—The Chinese government was opposed to the condition of likin abolition; consequently the other Conference delegations agreed unanimously to the unconditional acceptance of China's autonomy proposal. Concurrently the Chinese delegation stated the intention of its government to abolish likin prior to the effectuation of autonomy. The two decisions were embodied in the following resolution:

> The delegates of the Powers assembled at this Conference resolve to adopt the following proposed article relating to tariff autonomy with a view to incorporating it, together with other matters, to be hereafter agreed upon, in a treaty which is to be signed at this Conference:
>
> The Contracting Powers other than China hereby recognize China's right to enjoy tariff autonomy; agree to remove the tariff restrictions which are contained in existing treaties between themselves respectively and China; and consent to the going into effect of the Chinese National Tariff Law on January 1, 1929.
>
> The Government of the Republic of China declares that *likin* shall be abolished simultaneously with the enforcement of the Chinese National Tariff Law; and further declares that the abolition of *likin* shall be effectively carried out by the First Day of the First Month of the Eighteenth Year of the Republic of China (January 1, 1929).

Extra-territoriality.—Pursuant to Resolution V of the Washington Conference, which provided for investigation "into the present status of extraterritorial jurisdiction in China" and "into the laws and the judicial system and the methods of judicial administration of China" with a view to making recommendations as to the reforms which might be made in order to justify the relinquishment of extraterritorial rights, the Secretary of State in identical notes to the twelve states which, with the United States, had signed or adhered to the Resolution, stated that the United States had appointed Mr. Silas Strawn as its commissioner and suggested that the commission convene in Peking on December 18, 1925. Prior action to that end had been withheld in 1922 at the request of the Chinese Government, which considered that conditions were not propitious for a satisfactory conclusion of the investigation, and in 1923 and 1924, when the Chinese Government informed the powers of its desire to have the commission begin its work, because of failure to secure unanimous consent from all the states concerned. On the date set for the commission to meet dispatches from Peking announced that the opening session of the commission had been postponed on account of the inability of some of the delegates to reach Peking due to the interference with railway traffic resulting from the civil warfare. In an address of the same date Secretary Kellogg expressed the hope that the commission would be able to assist China to regain jurisdiction over foreigners within her territory.

CHINESE CUSTOMS CONFERENCE

Peking Meeting.—Representatives of twelve nations came together at Peking, October 26—namely, the United States, Great Britain, France, Italy, Japan, Spain, the Netherlands, Belgium, Portugal, Denmark, Norway and Peru, met at Peking at the invitation of the Chinese government to carry out the revision of the Chinese customs tariff in accordance with the Treaty of Washington (Arts. I-IV), February 6, 1922. From the start it was clear that, as had been intimated in the invitations, the proposals of China would go far beyond the limited "revision" contemplated in the Washington Treaty. Dr. Wang, the head of the Chinese delegation, proposed at the first meeting that on their part the foreign powers should recognize China's autonomy in respect to the tariff; while China on her part was ready to abolish the internal tax known as likin.

American Plan.—Tariff autonomy for China being approved in principle by the delegates of the states represented, subject to the condition stipulated by China, the American minister, Mr. MacMurray, thereupon presented a definite plan, to be embodied in the text of a treaty, by which the principle of tariff autonomy, thus recognized, might by successive stages become an accomplished fact. Chinese customs rates were to be forthwith raised to 7½ per cent. on all goods, being the 2½ per cent. surtax contemplated in Art. III of the Washington treaty, and to 12½ on certain luxuries. Likin and related internal taxes were to be abolished; and, subject to the fulfillment by China of the conditions imposed, the treaty restrictions upon China's tariff should terminate and the Chinese national tariff should come into force on Jan. 1, 1929.

Conditions.—Among these proposed conditions imposed were: the increased revenues resulting from tariff autonomy should be used for: (1) a compensation to the provinces for the abolition of likin; (2) payment of rebate charges; (3) refunding of unsecured debts; (4) administrative expenses of the Central Government. November 19, a resolution was adopted by the Powers that the Chinese National Tariff law was to go into effect Jan. 1, 1929, while China pledged herself that likin should be simultaneously abolished.

INFLUENCE OF THE UNITED STATES IN WORLD AFFAIRS

By Denys P. Myers
World Peace Foundation

BASIS

The influence of any state upon general world affairs is difficult to estimate by objective standards. Estimation of American influence is still further complicated by special theses which the United States applies politically and by special postures which affect its action in some parts of the world.

The influence of the United States in world affairs will be better appreciated if the legal position of such a state internationally is recalled. States are "equal" as to legal competence, but not as to physical status, possession of interests, influence or activity in the world. The formula now employed is to base representation upon the extent to which states possess "general interests" or "special interests" in the business at hand. The principle that states "attend sessions at which questions interesting them will be discussed is practiced internationally by 55 states in the Assembly and Council of the League of Nations.

This formula is recognized continuously in the popular distinction between the "great powers" and the "small powers," terms which perhaps connote too specifically the single element of military ability. However, they may be employed for the sake of convenience. "Great powers" may vary in weight and influence among themselves, as was determined in the ratios of the Washington treaty on limitation of naval armament. "Small powers" may on occasion exercise the weight or influence of a "great power," chiefly by reason of the excellence of ideas, mediatory reasonableness and the quality of persons representing them.

ANOMALIES

The position of the United States is anomalous. It is a "great power" and is insistent upon that position, although the status is not questioned. But it acts on a policy of limited interests, as circumstances constrain a "small power" to do. Both as a great and as a small power it acts positively and negatively, both to do and to prevent doing. But whether positive or negative, its influence is that of a great power by reason of its sheer weight in the world of states.

American policy is not consistent throughout the world. Canadian relations being exceptional, the United States in the Western Hemisphere acts in accordance with the patent fact of its being the sole "great power" in the region; its influence is both welcomed and resented, though not denied, while its self-restraint is not always appreciated or rightly interpreted. Its influence in Latin America decreases as those states participate more fully in international affairs. In Asia it acts the "great power" pursuing its own interests, but without the territorial and raw-material objectives of less crowded and less endowed states. Toward Russia, American policy was uniformly friendly during the imperial régime, but its opposition to the advertised purposes of the Soviet régime has been officially unaffected by developing economic relations, which have modified the attitude of other states. The United States always insists on its conviction that it is different from Europe, especially in the two respects of governmental form and method of conducting its foreign relations. The sweep of democracy over Europe since the war has fundamentally altered the premise on which the first conviction was based.

RESPONSIBILITIES

As to the conduct of foreign relations, the ability of governments to make purely executive treaties without reference to parliaments or to keep them secret has disappeared in practice. It may be doubted whether any state not temporarily ruled by a dictator is now more capable of making "secret treaties" than the United States. A real differentiation exists with regard to another phase of foreign relations. Europe has always been a territory of closely intertwined relations; American foreign affairs have been simple. The European conviction that the problems of reparation and interallied debt payments are related and the American assertion that they are not to be related are both typical. For the distinctive attitude of American diplomacy has always been the separation of problems. If the doctrine of American isolation has been true, it has consisted more in isolating the issues of foreign affairs than in isolating the country.

Senate.—The Senate acts as a resistance coil to the Executive's conduct of foreign relations, rather than as a transformer of the public opinion it assumes to represent. It is neither more responsive nor more responsible to the public than the Executive; it makes negative use of its constitutional right to defeat policy by its one-third veto of treaties; coöperation with the Executive is laboriously and tardily effected and frequently conditioned upon legislative rather than national interests. The bringing of the Permanent Court of International Justice to a vote, the delay on the Isle of Pines treaty, the reservations on the German commercial treaty illustrate these characteristics of Senatorial coöperation.

Initiative.—Still another factor in any attempt to estimate the influence of the United States in world affairs is the almost free initiative of its citizens. American nationals do not depend on government permission to engage in enterprises abroad, nor can they count on it to make their case its own in any such degree as is common elsewhere. The influence of their activities on world affairs may be as important, though not as final, as that of their Government. By reason of the interests of its citizens, the United States has as many contacts with world affairs as any other state whatsoever.

One characteristic of the American mind, its practicality, accounts for a large part of its influence, whether exerted officially or unofficially.

The foregoing considerations militate against the influence of the United States being exerted to its full potential scope. American influence in current international affairs depends, first, upon whether the President finds it possible to participate in a given negotiation by demonstrating a special interest therein; secondly, upon whether the matter can be left to private initiative; thirdly, upon the part of the world concerned or even the locus of the negotiation.

SHARE IN REHABILITATION

The Washington Government was a full party to the Paris Peace Conference, in which it acted as a power of general interests. It did not ratify the treaty of Versailles or the other peace treaties. Instead, it negotiated "treaties restoring friendly relations" with its ex-enemies, treaties which were schedules to the Paris treaties. In this step, was a sharp reversion to a policy pursuing special interests, limited and definite. This was a very effective posture. During 1925, it approached futility and increasingly free participation occurred.

The American citizen who is abroad because of special qualifications for a specific task has added greatly to national prestige. Jeremiah Smith, Jr., in Hungary, Charles P. Howland in the Greek Refugee Settlement Commission, Arthur C. Millspaugh in Persia, S. Parker Gilbert and Joseph E. Sterrett at Berlin, Walter P. Cook at Paris, E. W. Kemmerer at Santiago de Chile have done or are doing notable work, all in the financial field. Their weight in affairs is not duplicated in any other field and in most instances their value to the reputation of the United States is not due to any attitude of their own Government. "The delegation of the citizen-of-the-United-States member of the Reparation Commission by virtue of the inter-allied agreement of August 30, 1924," plays an appreciated part; the "unofficial observer" of the Department of State on the Reparation Commission is tolerated.

COMMERCE

In the field of commerce the Government is more aggressive than its citizens. The urge to enter the foreign market is to a considerable degree inspired from Washington. On the other hand, initiative is entirely left to the trader. Nor does trade necessarily follow governmental policy. American trade with Soviet Russia in 1925 increased relatively more rapidly than that of other countries. Trade, however, does not particularly increase the prestige of the United States. The immense internal market makes American external trade very small proportionately, while both the tariff and the high dollar cause the foreigner to limit it to essential raw materials and exclusive manufactures. American foreign commerce, more than any other, is based on the necessities of the buyer rather than the common element of mutual advantage. As a consequence, American foreign trade policy is less sensitive and less elastic than that of most countries. This circumstance during 1925, a year in which the world made notable strides toward "normalcy," resulted in clear indications that other countries, especially in Europe, foresee the possibility of developing their mutual trade independently of American offerings. Only in the Far East do they prefer to trade with Americans rather than others.

LEAGUE OF NATIONS

During 1925 the United States Government has maintained a less negative attitude toward the League of Nations than in the past. On the other hand, the negative attitude had ceased to be effective. Technically speaking, the United States is not represented on any League commission; but government officials are members of several, some of whom are active Foreign Service officers. However, in almost every activity at Geneva are American citizens, contributing to action which states other than their own deem worth while. The largest contributions of private funds to specific League activities have come from America.

The negative influence which the United States exercised for several years over the plans of the Assembly and Council of the League of Nations has ceased. They did not act in the hope that the United States might itself act, they postponed decisions in expectation that the United States would consent to participate. In 1925 the League states made a practice of taking decisions regardless of whether the United States had or had not expressed its opinion or decided the question of its participation. Repeated suggestions that the United States might call an armament conference have not halted the continuous Geneva program for attaining agreement on that problem.

CONFERENCES

The United States delegation withdrew from the Second Opium Conference on the ground that its decisions were not sufficiently fundamental. Undoubtedly the American attitude resulted in more being agreed to than otherwise would have. The American argument was that the international agreement was not worthy of signing because it did not go beyond its existing national legislation. The foreign attitude is that the United States jeopardized the success of reforms representing a considerable advance in international practice and refused to accept this improvement because its full program was not adopted.

In the Conference on International Trade in Arms, Munitions and Implements of War, the American delegation took a normal part. Foreign doubts exist, however, whether the Government will be able to ratify the convention. In any case, they regard the United States as largely responsible for the lack of control over this trade since the war.

In the Conference on the Chinese Customs Tariff, the United States proposal was the basis of discussion, the actual decisions reached up to December 1, however, being on points common to all the proposals.

INDIRECT INFLUENCES

Influence of the United States in Europe has been carefully circumscribed and exerted passively rather than actively. In December, 1922, Chancellor Cuno of Germany made to France, through the Department of State of the United States, a peace proposal which was the forerunner of the "security" project of February 9, 1925. In 1922 the idea was that the United States act as a sort of stakeholder of the agreement to be reached. The Secretary of State declined to transmit the proposal to the Poincaré Government of France. The original 1925 suggestion contained a clause contemplating the United States as guaranteeing trustee. The suggestion was not formally communicated and the United States itself took no step to have any relation to Locarno. The American policy of limited interests thus left that conference entirely uninfluenced by Washington.

FINANCIAL POLICY

Economic consequences of the war have made the United States the principal reservoir of capital and the excessive gold supply here has rendered desirable the establishment of credits against it. The relation or the Government to the investment of capital abroad is a limited one; it is assumed to have a bearing upon foreign relations. The Department of State, the Treasury and the Department of Commerce have no legal supervision over the flotation of foreign loans on the American market, either for public or private purposes. But the Government does not let the financiers alone in their field. The Department of State regards flotations as a matter of public concern, "in view of the possible national interests involved." It expects to be afforded an opportunity to indicate whether it desires to raise objections to particular transactions, but it "will not pass upon the merits of foreign loans as business propositions, nor assume any responsibility whatever in connection with loan transactions." *

This policy is not only a very delicate one to pursue but it invites rather than allays a disposition to misunderstanding or misinterpretation. Such statements of action under it as have been made indicate that the United States Government has considered the political and economic effect of loans upon mutual relations; has discouraged loans for armament purposes; has objected to public loans "for unproductive purposes" to governments whose debts to the United States Government have been unfunded; has discouraged the development of "economic exploitation," and has objected to the monopolization of products consumed by the United States. The policy has been the subject of much narrow criticism and defenses of it have too often assumed it represented virtues not involved. But, taking it all in all, it has beneficially increased the influence of American finance abroad. Without exception, borrowers and lenders have been better friends after than before the loans were made. Justice lies in a balance of interests, and true progress in keeping the channels of friendship open for development.

During 1925 the United States Treasury has made debt funding agreements with the Governments of Belgium, Czechoslovakia, Esthonia, Italy, Latvia and Rumania. If the Congress accepts the relaxations from the British terms included in some of them, the United States will, in the judgment of many capable Americans, have confirmed a wise step. The debt policy has created an impression abroad which is not defined there as "helpfulness."

LATIN AMERICA

The position of the United States in Latin America has on the whole improved. The old Tacna-Arica dispute was arbitrated by the President, who appointed the head of the plebiscitary commission. Peru twice protested the terms of the award, and Chile by no means made the work of the commission easier. However, those moves were in the nature of things and have not permanently affected relations with the United States. The withdrawal of marines in August from Managua, Nicaragua, on six-months' notice was prefaced by a refusal to continue them longer in a place where they had already remained 13 years. Secretary of States Kellogg in a public statement in June made a sharp attack on the Mexican Government, which retorted in like terms. Apparently, opinion in the United States did not ratify the judgment of the Secretary of State in originating the passage at arms. The incident, interpreted in Spanish speaking America in its worst light, contributed to a feeling of distrust against the United States outside of Latin American governmental circles.

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* "Flotation of Foreign Loans," State Department communiqué, March 3, 1922; "The Department of State and Foreign Loans," address of Arthur N. Young at Williamstown, August 26, 1925.

The year may be said to have left the position of the United States about what it was in Latin America, which remains suspicious of American Caribbean policy and action, and does not appreciate having the Monroe doctrine interpreted solely by the Washington Government.

FAR EAST

In the Far East the influence of the United States was at its highest. The Japanese Government has not forgotten that the President and the Secretary of State were unfavorable to the passage of the immigration exclusion law, and has gone out of its way to avoid treading on American susceptibilities; for instance, the extraordinary homage paid to the memory of Ambassador Bancroft. Official relations with Japan are on a much better basis than popular relations, which are controlled by Tokyo and uncontrolled by Washington.

The position of the United States in China remains curious. Though the Washington Government benefits from every foreign advantage secured from the Peking Government, except territorial enclaves, both countries have always assumed that they were close friends. The Chinese authorities maintain most grateful relations with the American. The national of the United States is not, however, as popular among the Chinese people as he has been, but that is doubtless temporary and due to division of opinion respecting Chinese aspirations, which will disappear when tariff autonomy, etc., are settled.

ECONOMIC POLICY

The real influence of the United States in 1925 has been economical and financial. It has been most effective in Germany, which has steadily replenished its capital from United States supplies. The economic field is the only one in which the United States has participated freely in world affairs. In view of the impoverished condition resulting from the World War, the emphasis has undoubtedly been correct. Active co-operation in other fields has been casual. The President in his annual message of December 7, said: "The example of this attitude has not been without its influence upon other countries." The attitude referred to is the seeking of "better understandings through conference and exchange of views" and the "gradual elimination of disputes." In those matters few other countries would admit that their inspiration came from America.

THE INSTITUTE OF POLITICS

By William M. Schuyler

Editor, Institute Bureau of Records, 1925

Objects.—The fifth annual session of the Institute of Politics was held at Williams College in Williamstown, Mass., July 23 to August 22. To avoid misconception Dr. Harry A. Garfield, President of Williams College and Chairman of the Institute of Politics, deemed it desirable that the purposes of the Institute should be restated. In the opening address at the inauguration ceremony in Chapin Hall on July 24 President Garfield, among other things, said:

"The object of the Institute of Politics is enlightenment. . . . In the midst of the chaos of things, of the triumphant overwhelming burden of success, western civilization needs enlightenment. It needs a new revolution of those impelling forces which drove God's creatures up out of the sea upon the land, out of the trees into the fields, out of mere brute strength into intellectual power. We of the western world have separated ourselves too far from those of the East. Neither East nor West can stand alone. Together they may save the world, utilizing western strength and eastern vision.

"But these things cannot be realized unless first we understand one another. Understanding is a condition precedent to enlightenment. Therefore, the Institute of Politics seeks to bring together in this place those who, believing in the vision, seek to understand one another, and if possible to trace to their beginnings those experiences and influences that have created present conditions. We are not seeking to inform members for their own sakes but in the interest of the common welfare. For this reason the Institute offers no certificate of graduation though the members get much by attendance; they are invited to attend not that they may get, but that they may give—give freely of their store of knowledge and experience to the end that public opinion may be informed and enlightened. The object of the Institute is humanistic. We are more interested in promoting the welfare of mankind than in conserving its possessions; yet we recognize that the things men possess are useful and necessary to their well being—even to their spiritual progress.

"During the first session of the Institute (1921) there were many who failed to understand why our conferences stopped short of action. What is the use of discussing ideas, of exchanging information if we are to do nothing? Why not at least adopt a resolution, declare a purpose? . . . We are seeking primarily to inform ourselves, not to convince others; to see each with his own eye below the restless surface of human desires into the depths of human needs. . . .

"Conferences like this and the many others that are now held in this country and throughout the world for the purpose of enlightening public opinion are assemblies precedent to the official parliaments of nations and because they are unofficial, because they do not attempt to frame programs or adopt resolutions, because in short they are places of confidence and good will, there come to them without fear of embarrassment officials from foreign countries and from the departments of our own government, officials who, speaking in their private capacities, contribute in most important ways to the understanding of the members of the Institute, to the enlightenment of the citizenship of our country."

Attendance.—The registration at this year's session of the Institute was substantially heavier than that of any previous year. The total number of persons engaged in the work of the Institute, whether as fully qualified members or as assistants in the various round tables and conferences and in the Bureau of Records, was 317 of whom 181 were active members and 51 were associate members. This distinction in membership was made to solve the difficulties of those who wished to reside at Williamstown during the session of the Institute in order that they might enjoy the privilege of attending the evening lectures and general conferences without obligating themselves to participate in the actual discussions. This distinction also relieved the Institute authorities of the obligation of providing quarters for the less active members of the Institute.

Lectures.—The program called for lectures in Chapin Hall practically every week-day evening. The lecturers resident in Williamstown throughout the session were Count Antonio Cippico, Italian Senator and staunch supporter of Mussolini, whose topic was the Mediterranean Area and Italy; M. Robert Masson of France, a Director and practically the manager of the Crédit Lyonnais, who spoke on the Peace Problems of France; and Dr. William E. Rappard of Switzerland, a member of the Permanent Mandates Commission of the League of Nations, who chose as the subject of his series of lectures "International Relations as Viewed from Geneva." In addition to these three lecturers, each of whom spoke two or three times each week, there was Count Skrzynski, the foreign Minister of Poland, who arrived in this country on July 14, and after conferring with President Coolidge at Swampscot and subsequently visiting New York and Washington, went to Williamstown, where he delivered a lecture before the Institute on the evening of July 30. Count Skrzynski's address was on the subject of America and Polish Democracy, in which he reviewed some of the critical postwar problems of Poland. M. Felix Valyi, a native of Hungary now residing in Paris, formerly editor of the *Revue Internationale Politique*, gave a lecture on the evening of August 10 on the subject of "The Spirit of Asia and Asiatic History."

Round Tables.—The closed Round Table conferences comprised the following general topics: Agriculture and Population Increase, conducted by Professor Edward M. East of the Chair of Plant Morphology at Harvard University; the Economic Recovery of Europe, by Professor Edwin F. Gay of Harvard University; Mineral Resources as a New Environmental Factor in World Affairs, by Professor Charles K. Leith of the University of Wisconsin; Limitation of Armaments, by Major General Sir Frederick Maurice, who was the Chief of Operations on the British General Staff during the War and known in intellectual circles on this side of the Atlantic as the author of the *Life of General Robert E. Lee;* International Justice, by Professor Jesse S. Reeves of the University of Michigan; Outstanding Problems in Inter-American Relations, by Dr. Leo S. Rowe, Director-General of the Pan-American Union; Some Political Problems in Contemporary Europe, by Professor Bernadotte E. Schmitt of the University of Chicago, and The Mediterranean Area (with special reference to the relations between the European powers and the Arabic speaking peoples), by Professor Arnold J. Toynbee of London (Eng.) University. In addition to the Round Table conferences two general conferences were arranged for, the first dealing with the subject of the Recent Foreign Policy of the United States, conducted by Professor George H. Blakeslee of Clark University, and the second, The British Commonwealth, conducted by Lionel Curtis of Great Britain, who is regarded as the spokesman for English thought in the movement for a Commonwealth of Nations. Mr. Curtis, who is a Fellow of All-Souls College, Oxford, and Editor of the *Round Table Magazine*, was one of the founders and now serves in the capacity of honorary secretary of the British Institute of International Affairs, an organization which in some respects is similar to the Institute of Politics.

Open Conferences. — There were also several informal or specially arranged open conferences at which many of the controversial questions of the day were presented for free discussion. In the first week of the Institute's session William R. Castle, Jr., Chief of the Division of Western European Affairs, Department of State, summarized the policy of the Administration of President Coolidge towards Europe. He stated that this Government would insist upon the funding of all war debts, but that under no circumstances would it play the rôle of "Shylock." Mr. Castle expressed the aim of American policy toward Europe as "helpfulness without impertinent interference, coöperation without entanglement, avoidance of policies which cannot be fulfilled and scrupulous fulfillment of engagements." Prefacing his remark by stating that he was ready to applaud any good thing which comes out of the League of Nations, Mr. Castle said of the World Court that "it approaches the ideal toward which the policy of this country has always worked."

Japan.—Addressing his Round Table on Mineral Resources in World Affairs, Professor Leith took occasion to dispel some of the illusions concerning Japan as a formidable world power. "Japan," he said, "is woefully weak in the main sinew of war —steel—and knows it." He pointed out that it would be scarcely possible for Japan, even if she could get a supply of steel in the Philippines or in China or elsewhere, to maintain a huge steel plant merely for war purposes. He emphasized the fact that the consuming capacity of Japan for steel products is so small that she could not support a large industry in time of peace.

Limitation of Armaments.—Considerable controversy arose in the Round Table of General Maurice, which dealt with the Limitation of Armaments. General Maurice insisted that Europe as a whole was just as much of an armed camp now as it was before the war. He attributed this fact to the fear which nations in Europe entertain for each other. That this was not to be interpreted as a likely cause for war in the near future General Maurice indicated when he said that it was "extremely improbable that there would be a general European war within the next twenty years." The only barrier to such a conflict which he was prepared to cite was the general desire in Europe to avoid another war, a desire which possibly may be said to have become vocalized in the more recent Locarno Pact. Admiral Huse of the United States Navy declared that there was no point in discussing limitation of armaments so long as there were many economic causes for conflict. The subject of General Maurice's Round Table proved in fact to be one of the most controversial topics discussed at Williamstown, but it served to emphasize the principle note sounded at the Institute, which was the desire of all peoples and all nations to maintain peace or at any rate to seek the means for maintaining peace.

Population and Immigration.—The population and immigration question engaged much of the interest of the members and the leaders of the Institute. An episode arising out of this interest was the spirited issue which arose between Count Cippico and Professor East concerning the solution of Italy's excess population problem. Count Cippico drew the fire of Professor East's criticism by stating that one of two things must be done to help Italy provide for her excess population: that colonial territories should be given to Italy where her people can settle under the Italian flag, or that in foreign and thinly populated countries Italian emigrants must be grouped together and remain Italian citizens. Professor East in effect held that the world was under no such obligation to Italy, contending that the solution lay in the exercise of birth control. Professor East used such vigorous language in driving home his point that Count Cippico was offended and declined to discuss the matter with him. Dr. Garfield also took cognizance of the incident to the extent of defending the Italian immigrant in this country, his usefulness, etc., as a laborer and a farmer. In some quarters Dr. Garfield's observations were interpreted as a rebuke to Professor East.

Endowment.—Taken as a whole the fifth annual session of the Institute was marked by the utmost harmony and a most fruitful interchange of views between a widely diverse group of spokesmen. The usefulness of the Institute in fact was so clearly demonstrated that immediately following its close preparations were begun to raise $1,000,000, to be used as a permanent endowment for the Institute. Heretofore the Institute has been supported from year to year mainly by individual support. This year that support was derived from Bernard M. Baruch, the Carnegie Foundation and the General Educational Board. Plans were still in the making for this undertaking when the year closed. The Institute had already been provided for financially for another two years. It is expected that the endowment enterprise will be well developed before the next session of the Institute.

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Professor at Columbia University

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PART TWO
AMERICAN GOVERNMENT

DIVISION III
CITIZENSHIP AND PERSONAL RIGHTS

CITIZENSHIP AND NATURALIZATION LAWS

By Richard M. Flournoy, Jr.
U. S. Department of State

In this article the words "citizen" and "national" and the words "citizenship" and "nationality," referring to the relationship of the individual to the state, will be used interchangeably as being synonymous.

Citizenship Problem.—During the past two decades, because of the vast influx of aliens into the United States, the nationality problem, including questions relating to immigration, naturalization and expatriation, has been more and more engaging the attention of thoughtful men and women, in and out of the Government, who are solicitous of the future character and welfare of this country. It has come to be realized that the material of which the citizenship of the country is made is a matter of far greater importance than certain economic problems which have so largely occupied public attention in past years. Tariffs and railroad rates may be changed over night, but this is not true of the citizenship of the country. The effects of the very liberal immigration laws of past years will be felt through untold generations. It may be said without exaggeration that the citizenship problem is the chief political problem before this country at the present day. It is coming to be realized that the immigration problem should be considered more and more with regard to the ultimate political and social good of the country, rather than with regard to immediate economic demands. The general interest in the subject is indicated, not only by discussion in newspapers and magazines, but also by Acts of Congress and decisions of courts.

CHANGES IN THE NATURALIZATION LAWS

Acts of 1906 and 1907.—In the years 1906 and 1907 questions concerning naturalization and expatriation and the citizenship of married women and children born abroad of American citizens engaged the attention of Congress, with the result that two very useful statutes were passed, namely, the Naturalization Act of June 29, 1906 (34 Stat. Pt. I, 596), and the Citizenship Act of March 2, 1907 (34 Stat. Pt. I, 1228).

The principal objects of the Naturalization Act were to bring about more uniformity and greater strictness in the naturalization process and to enable the executive branch of the Government to supervise naturalization to some extent through a new agency, the Bureau of Naturalization, in which complete records of naturalization are kept. Naturalization continued to be a judicial process, however, although agents of the Bureau of Naturalization known as Naturalization Examiners can appear before the courts and oppose the admission to citizenship of individuals who appear to be inadmissible under the law.

Proposed Administrative Process.—The Naturalization Act of 1906 has been very beneficial, not only by preventing the admission to citizenship, through fraud, on the part of the aliens or carelessness on the part of the courts, of persons not entitled thereto, but also by furnishing the executive branch of the Government with data concerning naturalization which will be of great value in shaping future legislation. However, the law is not perfect.

Suggested Amendment.—The Commissioner of Naturalization, Mr. Raymond F. Crist, in his annual report to the Secretary of Labor for the fiscal year ended June 30, 1925 (Government Printing Office, Washington, D. C., 10 cents per copy), recommends various amendments, one of which is of a radical character. On page 27 of the report he says:

> It is recommended that naturalization be made an administrative function instead of a judicial one, with the right of appeal to the appropriate United States court after an administrative review of an adverse decision in the Bureau of Naturalization.

With regard to this same matter the Commissioner, on page 23 of the report, makes the following observations:

> The recommendation for administrative courts has been urged for years by both Federal and State judges who have conferred the largest number of naturalizations, and who feel that the present system does not afford the dignity that should be given this most important of subjects.
>
> With proper compensation there is no doubt that as highly patriotic and capable citizens could be found to sit as naturalization judges in administrative courts as now occupy other positions of equal trust and responsibility. As specialists in the naturalization law, the conclusion that they would render better service is in no sense a reflection upon the judiciary.

Naturalization Through Courts.—Since the passage of the first naturalization law (Act of March 26, 1790, I Stat. at L. 103), naturalization has been conferred by the courts. Probably this function was placed upon the courts not because it was believed that the act of conferring citizenship upon an alien is in its nature a judicial act, but for the simple reason that there were no executive agencies scattered throughout the country which were fitted for this important task and the creation of special naturalization offices was considered too expensive. The courts have held that decrees of naturalization are "judgments" of the courts. (Spratt v. Spratt, 4 Peters 393; Van Dyne on Naturalization, p. 10, and cases cited).

Administrative Character. — However, although naturalization may be in form a judicial function, it is essentially an administrative act. The court does not decide that the petitioner, by doing certain things, has become a citizen of the United States; it confers citizenship upon him, after being satisfied that he has met the legal requirements. This question was considered by the District Court of the United States for the Eastern District of Michigan in a recent case relating to the right under the law to cancel the certificate of naturalization of one John Mohammed Ali, a native of India who alleged that he was of Arabian ancestry, upon the ground that he was not a "white person," within the meaning of the naturalization law (Section 2169, Revised Statutes of the United States). Judge Tuttle, in rendering the opinion holding that the certificate of naturalization should be canceled, made the following observations:

> It is urged on behalf of the defendant that the question whether he is entitled to citizenship was conclusively decided in his favor by the action of this court in granting him his certificate of citizenship in the naturalization proceedings already referred to, and that such question is therefore res judicata, and cannot be raised by the government in the present proceeding. This contention cannot be sustained. It is now settled law that the statutory naturalization proceeding by which an alien seeks the privilege of citizenship is not a judicial adversary proceeding in any true legal sense, and that an order directing the issuance of a certificate of citizenship in such naturalization proceeding is, in essence, not a judgment rendered by a court in a pending suit between adverse parties, and as such final and binding upon said parties as to all matters involved in the suit and decided by the judgment, but is merely a grant, in special proceedings authorized by Congress, of a political privilege conferred by the government upon the petitioning alien purely as a gratuity, and subject to whatever terms and conditions Congress may impose therein, including the right of the government to insist upon a cancella-

tion of such certificate. if found to have been illegally procured. Johannessen v. United States, 225 U. S. 227, 32 S. Ct. 613, 56 L. Ed. 1066; United States v. Ness, 245 U. S. 319, 38 S. Ct. 118, 62 L. Ed. 321. (United States v. Ali, 7 Fed. (2nd) 728, 730.)

In New York, Boston, Chicago, Philadelphia and other centers of alien population the judges of the courts which are now burdened with the task of naturalization of aliens would, no doubt, be greatly pleased if Congress should relieve them of this burden, so remotely related to their normal functions, and place it upon officers specially created and fitted for the work. Whether such offices should in form be "administrative courts" or executive bureaus is, perhaps, not of great importance. The fact that some of the courts sometimes grant naturalization to hundreds of aliens in a single day seems to show that the proposed change is urgently needed.

Naturalization Examiners.—It appears from the Commissioner's report that the Naturalization Examiners are already doing a large part of the work relating to naturalization, including the preparation of the papers and examination of the petitioners and that many of the courts rely upon their recommendations to a very great extent in deciding whether to grant or whether to withhold naturalization. (See pages 17-18 of the Report.)

Qualification in English.—Another interesting recommendation of the Commissioner is that every alien applying for naturalization should be required not only to speak and write in the English language, as at present, but also "to read and discuss in the English language any suitable article from a newspaper and to evidence a knowledge of the institutions of the Government to the satisfaction of the naturalization examiner prior to petitioning." (Report, p. 26.)

DUAL NATIONALITY

By Richard M. Flournoy, Jr.
U. S. Department of State

STATUS

Dual nationality or double citizenship, may exist in the case of a person born in one country of parents who are nationals of another country. Under the *jus soli* he may be claimed as a national of the country of his birth, but under the *jus sanguinus* he may likewise be claimed as a national of the country of his parents' nationality. It has frequently been said that a person born with dual nationality, should upon attaining his majority or shortly thereafter, make an election of the nationality which he wishes to retain.

RECENT DECISIONS

Mackenzie Case.—October 30, 1925, Judge Parker, Umpire of the German-American Claims Commission rendered a decision on dual status (William Mackenzie, individually and as Administrator of the Estate of Mary A. Mackenzie, deceased, and others v. Germany). It was held that the law of the United States does not recognize loss of American nationality through "election" of a foreign nationality. This case related to the status of the widow of one Robert A. G. Mackenzie, who was born in the United States of British parents on June 4, 1858, was taken as a child by his parents to England, was married in England in 1879, thereafter resided for some years in Canada, and in 1894 returned to the United States, where he died in 1901. It seems that the German Agent had challenged the right of the administrator of his widow to present a claim to the Commission upon the ground that, by his long residence in British territory after attaining his majority, he had elected British nationality and had lost his American nationality. In the course of his opinion Judge Parker said:

> Citizenship is determined by rules prescribed by municipal law. The issue here presented must be determined by the law obtaining and enforced within the jurisdic-

tion of the United States. Under that law Robert A. G. Mackenzie, who was born in the United States of British parents, was by birth an American national, notwithstanding the Fourteenth Amendment to the Constitution had not then been adopted and the statutes in pursuance thereof had not then been passed. Under the laws of Great Britain then in effect he also possessed British nationality by parentage. This created a conflict in citizenship, frequently described as 'dual nationality.' The American law makes no provision for the election of nationality by an American national by birth possessing dual nationality. As Robert A. G. Mackenzie was by birth an American national, he could neither divest himself of the rights of an American citizen, save through expatriation by becoming a naturalized citizen of a foreign state in conformity with its laws or possibly by taking an oath of allegiance to a foreign state. So far as disclosed by this record the right of expatriation was never exercised by him. He therefore remained an American citizen.

Relation to Americans in Foreign Countries.—Judge Parker proceeded to discuss various statements of Secretaries of State concerning election of a foreign nationality in cases of persons born in the United States of alien parents, and expressed the opinion that these statements related to loss of right to the protection of the United States in the other countries claiming the allegiance of the individuals concerned and not to actual loss of American nationality. In this connection he made the following observation:

> Much might be said in favor of adoption by the United States and other nations of a multilateral treaty, supplemented by municipal legislation, looking to the abolition of dual nationality or its termination through enforced election under appropriate restrictions. But it is not competent for this international tribunal to consider what the municipal law of the United States with respect to its citizenship should be, but only to find and declare that law as it is, to the extent necessary to determine the jurisdiction of this Commission and the liability of Germany under the Treaty of Berlin.

The conclusions reached by Judge Parker in this case were similar to those reached by the present writer in his article on "Dual Nationality and Election," which appeared in the *Yale Law Journal* for April and May, 1921 (Volume XXX, Nos. 6 and 7), in which decisions of courts and pronouncements of the Department of State concerning this subject were discussed at some length.

PROPOSED PAN AMERICAN CONVENTION

The question of dual nationality was discussed by the writer before the American Society of International Law in Washington on April 24 last, with regard to a proposed Pan American Convention for preventing dual nationality, which was drafted at Lima by the Institute of International Law. This discussion was printed in the proceedings of the American Society of International Law, April 23-25, 1925, pages 69-78.

The proposed Pan American Convention provided that nationality should depend entirely upon place of birth, under the *jus soli,* although it was also provided that individuals born in one of the American Republics of nationals of another Republic might, when they had reached their majority, adopt the nationality of their parents.

DIFFICULTIES OF THE SITUATION

It is obvious that dual nationality at birth * would cease to exist if the various countries of the world should agree that nationality should be based entirely upon either place of birth or nationality of parents. At present the laws of all countries contain provisions under which, within certain limitations, an individual is claimed as a national of a country, wherever he may be born, because his father is a national thereof. A number of countries, including the United States, Great Britain, and countries of Latin America, also claim as their nationals all persons born within their territory and jurisdiction.

In view of the large number of American citizens who reside in foreign countries for business or pleasure, or as missionaries of American churches, or representatives of American organizations of various kinds, it seems doubtful that Congress would deem it proper to repeal Section 1993 of the Revised Statutes, under which a person born abroad of an American father is born an American citizen, provided his father has resided in the United States at some time. In this connection it will also be necessary to consider the status of children born abroad of American consuls.

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* The Government of the United States does not admit the existence of dual nationality in cases of persons who have been naturalized in this country.

Perhaps a satisfactory rule would be one under which an individual would be regarded as a national of a country because of his birth within its territory, provided his parents are domiciled therein at the time of his birth. Such a rule, however, would require an amendment to the provision of the Fourteenth Amendment to the Constitution of the United States, which states that:

> All persons born or naturalized in the United States and subject to the jurisdiction thereof are citizens of the United States.

POSSIBLE MULTILATERAL AGREEMENTS

If it is impossible to prevent dual nationality from arising by the adoption of uniform nationality laws in all countries, it may still be possible for the various countries to enter into a multilateral agreement under which dual nationality may be terminated when the individuals concerned reach their majority or shortly thereafter.* It might be agreed, for example, that an individual who has dual nationality shall cease to be a national of either country upon reaching his majority or one year thereafter if at such time he is domiciled in the other country concerned. The loss of nationality of either country should be made to depend upon the acts of the individual concerned, rather than upon mere declarations.

PASSPORT REGULATIONS

By Richard M. Flournoy, Jr.
U. S. Department of State

Period of Validity Increased.—It was provided in the Diplomatic and Consular Appropriation Act of June 4, 1920, that the validity of passports should be limited to two years unless the Secretary of State should by regulation limit it to a shorter period. At first the validity of passports was limited to one year, with right of renewal for one year more, but, by an order of May 7, 1925, the initial validity was extended to the full period of two years.

Visa Fees Reduced or Abolished.—The Act of Congress just mentioned also prescribed a fee of $1 for the execution before a consul of an application for a visa of the passport of an alien coming to this country and an additional fee of $9 for the visa. This applied to visas of temporary visitors as well as to those of immigrants. Most foreign countries retaliated by increasing the visa fee required of Americans entering their territories, with the result that the expense of extensive foreign travel by Americans was greatly increased.

Therefore, Congress passed an act, approved by the President February 25, 1925, authorizing the President to "reduce such fees or to abolish them altogether, in the case of any class of aliens desiring to visit the United States who are not 'immigrants' as defined in the Immigration Act of 1924, and who are citizens or subjects of countries which grant similar privileges to citizens of the United States of a similar class visiting such countries."

Agreements for Reduction.—Under the authority of the statute mentioned agreements for mutually reducing or abolishing visa fees in cases of non-immigrants have been made with the following countries—Bulgaria, Costa Rica, Denmark, Guatemala, Nicaragua, Esthonia, Germany, Salvador, Siam, Mexico, Liberia, and Finland. No visas are required for visiting Switzerland, Panama, Honduras, Nicaragua, Esthonia, Siam and Liberia.

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* There are now several bilateral treaties of this kind, and the statutes of a number of countries contain provisions under which dual nationality may be terminated.

New Rule for Overcoming Statutory Presumption of Expatriation.—On March 2, 1925, the Department of State issued an order amending the regulations under which may be overcome the presumption of loss of citizenship arising, under Section 2 of the Act of March 2, 1907 (34 Stat., Pt. I, 1228), against a naturalized citizen who has "resided for two years in the foreign state from which he came, or for five years in any other foreign state." The statute provides "that such presumption may be overcome on the presentation of satisfactory evidence to a diplomatic or consular officer of the United States, under such rules and regulations as the Department of State may prescribe."

Comparison with Former Rules.—The former rules provided that the presumption could be overcome by the persons concerned upon their showing that they had an intention of returning to the United States to reside and that they had been residing abroad as representatives of American trade and commerce, or for health or education, or as representatives of American educational, scientific, philanthropic or religious organizations, or because they had been prevented by some unforeseen exigency from returning to this country. There was also a special rule applicable to persons residing in nearby countries. A new rule was added, providing that the presumption could be overcome by naturalized citizens upon their showing:

> (e) That they reside in a country other than that from which they came and are principally engaged in some legitimate professional or scientific occupation, not inconsistent with American interests and for which occupation they were trained in American institutions; that they maintain effective ties with the United States, and that they intend eventually to return to the United States permanently to reside.

Professional Men.—The new rule, which has no application to naturalized citizens residing in their native lands, was intended principally for the benefit of mining, electrical and civil engineers and for dentists, physicians and other professional men, whose occupations carry them to various quarters of the earth.

Relation to Women.—It may be observed that the rules mentioned are applicable also to American women who have married aliens eligible to citizenship * since the passage of the married women's nationality Act of September 22, 1922 (42 Stat. Pt. I, 1021) and who, having resided for two years in the countries of which their husbands are citizens or subjects or for five years elsewhere outside of the United States, have brought upon themselves the presumption of expatriation under the provision of Section 3 of the Act.

LIMITATIONS ON NATURALIZATION

By Richard M. Flournoy, Jr.
U. S. Department of State

Permanent Residence Abroad.—During the year the courts have in a number of cases issued decrees, under the provision of the second paragraph of Section 15 of the Naturalization Act of 1906, canceling, as void *ab initio*, the naturalization of aliens who, within five years after the dates of their naturalization established a permanent residence abroad. Proceedings in these cases are begun with reports, in the form of certificates, furnished by consular officers. The statutory provision in question has been very useful in enabling the Government to weed out bad naturalization cases, thus relieving the Government of the task of extending, or attempting to extend, protection to persons who are not really entitled to it.

The theory embodying this law is that citizenship involves obligations as well as privileges and that lawful naturalization implies an intention on the part of the person naturalized to reside permanently in the United

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* Those who marry aliens "ineligible to citizenship" thereby immediately lose their American citizenship, under Section 3 of the Act.

States. The acquisition of a permanent residence abroad within the period of five years after naturalization raises a presumption under the law that such intention did not exist at the time of naturalization. The statute has been held to apply to naturalizations obtained before its passage as well as to those obtained thereafter. (See Luria v. United States, 231 U. S. 9. The opinion of Mr. Justice Van Devanter in this case contains an excellent discussion of the juridical basis of the statute.)

In recent years, especially since the close of the World War, consular officers have furnished hundreds of reports in pursuance of the statutory provision just mentioned. A great majority of these reports related to persons of Italian birth who had returned to Italy to reside. This has been due largely to a custom prevalent among Italians to leave their wives and children in Italy, while they themselves reside alternately in Italy and the United States. In many cases Greeks and Syrians have also come within the operation of this statute.

WHO ARE WHITE PERSONS?

The Statute.—Within the past year the courts have rendered several decisions involving the important question whether certain aliens of Asiatic birth could be regarded as "white persons" under the naturalization law. (Rev. Statutes, Sec. 2169. The provisions of this Title shall apply to aliens [being free white persons, and to aliens] of African nativity and to persons of African descent.) Because of the vagueness of phraseology of the statute and of the fact that differences between various races are not sharply defined, this question has always been more or less puzzling to the courts.

Aliens Ineligible to Citizenship.—It has been rendered more important than ever by the inclusion in the Immigration Act of 1924 (Section 13b), of the provision that aliens "ineligible to citizenship," with certain limited exemptions, shall not be admitted to the United States. By this provision the laws concerning immigration and naturalization have been made to coincide. Taken together they show clearly that it is not the intention of Congress that the United States shall be a melting pot for persons of any and all races.

By these statutes a distinction is drawn between receiving aliens as visitors and receiving them as permanent members of the political community or citizenship of the country. As visitors the gates are open, regardless of race or color, but as to aliens coming for permanent residence Congress has shown by the legislation referred to that it is deemed necessary to ascertain whether such aliens belong to races the members of which will, as a rule, be readily and naturally assimilated, especially through marriage, into the citizenship of the country. This depends upon no scientific theory. Experience is the test, and experience has shown that persons belonging to races widely separated ethnologically from the body of the inhabitants of the country will not be readily and naturally assimilated, even though they may have attained a high degree of civilization. Even those who consider first the ultimate good of mankind, rather than the immediate needs of this country, will find it a hard task to prove that the good of mankind will in the end be served by the free admission into the United States of elements which are unassimilable.

African Descent.—When Congress, by the Act of July 14, 1870, extended the privilege of naturalization to aliens "of African nativity and to persons of African descent," it evidently had in mind African negroes, that is, aliens belonging to the same race as the former slaves. It is an interesting question whether a person born in Africa of Chinese or Hindu parents is entitled to naturalization as a person "of African nativity."

Arabian vs. Hindu.—In the course of his opinion in the case of United States v. Ali (supra), Judge Tuttle said:

> Although the defendant herein was, as already noted, referred to by all parties concerned with his naturalization as a high-caste

Hindu, and was admitted to citizenship on that understanding, in which he then appeared to acquiesce, he now claims that the last-cited decision of the Supreme Court does not apply to him, for the reason that he is not a 'Hindu' of full Indian blood, but is an Arabian of full Arabian blood. While admitting that he is a native of India, as his ancestors for several centuries have also been, he contends that originally his ancestors were Arabians, who invaded the territory now known as India, and settled and remained there, but have been careful not to intermarry with 'the native stock of India,' and have 'kept their Arabian blood line clear and pure by intermarriage within the family.' I am unable to follow the argument thus sought to be made. No reason has been suggested, and I can discover none, why the mere fact that the early ancestors of the defendant came to India from Arabia, where they had been called Arabians, renders the defendant a white person. His skin is certainly not white, but unmistakably dark, like that of the other members of his race. He is a native of the continent of Asia, specifically of the country of India, and more specifically of the province of Punjab, the place of the nativity of the alien held, in the case of the United States v. Bhagat Singh Thind, supra, not to be a white person. Clearly, all of the conclusions of the Supreme Court in that case, as well as the reasons on which they are based, are equally applicable to this defendant. He admits that his ancestry, like that of other races residing in India, originally sprang from Caspian Mediterranean stock. It would seem that the most that could be claimed by him, by reason of Arabian ancestry, would be membership in the Caucasian race. This, however, manifestly would avail him nothing, under this decision of the Supreme Court.

"What Is a White Person?"—In United States v. Bhagat Singh Thind, 261 U. S. 204, referred to in the opinion just quoted (opinion written by Justice Sutherland), it was held by the Supreme Court that a high caste Hindu of full Indian blood born in the Punjab, was not a "white person" within the meaning of the law and that his naturalization was unlawful and void.

In Ozawa v. United States, 260 U. S. 178, the court had held that a Japanese was not a "white person" and was, therefore, ineligible to naturalization. Justice Sutherland, in rendering the opinion, had observed that it was the intention of the Congress which framed the naturalization law "to confer the privilege of citizenship upon that class of persons whom the fathers knew as white, and to deny it to all who could not be so classified."

Caucasian Race.—It had also been stated in this opinion that "the words 'white person' were meant to indicate only a person of what is popularly known as the Caucasian race." In the Thind case, however, attention was called to the fact that the statute itself "does not employ the word 'Caucasian' but the words 'white persons,' and these are words of common speech and not of scientific origin." . . .

They imply, as we have said, a racial test; but the term 'race' is one which, for the practical purposes of the statute, must be applied to a group of living persons *now* possessing in common the requisite characteristics, not to groups of persons who are supposed to be or really are descended from some remote, common ancestor, but who, whether they both resemble him to a greater or less extent, have, at any rate, ceased altogether to resemble one another. It may be true that the blond Scandinavian and the brown Hindu have a common ancestor in the dim reaches of antiquity, but the average man knows perfectly well that there are unmistakable and profound differences between them today; and it is not impossible, if that common ancestor could be materialized in the flesh, we should discover that he was himself sufficiently differentiated from both of his descendants to preclude his racial classification with either. The question for determination is not, therefore, whether by the speculative processes of ethnological reasoning we may present a probability to the scientific mind that they have the same origin, but whether we can satisfy the common understanding that they are now the same or sufficiently the same to justify the interpreters of a statute—written in the words of common speech, for common understanding, by unscientific men—in classifying them together in the statutory category as white persons. (Pp. 209-210.)

Justice Sutherland mentions various writers on ethnology, including Deniker (*Races of Man*), Keane (*Man: Past and Present*), Huxley (*Man's Place in Nature*), and the *Dictionary of Races* (Sen. Doc. 61 Cong., 3d Sess., No. 662), and shows that scientists do not agree as to the divisions of races. He observes that the Aryan theory as a racial basis seems to be discredited by most, if not all, modern writers on the subject of ethnology, and that "the word 'Caucasian' is in scarcely better repute. It is at best a conventional term, with an altogether fortuitous origin, which, under scientific manipulation, has come to include far more than the unscientific mind suspects." Because the court in the Ozawa case held that a person who is not what is commonly known as a "Caucasian" is not entitled to naturalization, it does not necessarily follow that every person who may be regarded as a "Caucasian" is a "white person" within the meaning of the law. As to the true meaning of the words "white person," the learned judge said:

> The words of familiar speech, which were used by the original framers of the law, were intended to include only the type of man whom they knew as white. The immigration of that day was almost exclusively from the British Isles and Northwestern Europe, whence they and their forbears had come. When they extended the privilege of American citizenship to 'any alien, being a free white person,' it was these immigrants—bone of their bone and flesh of their flesh—and their kind whom they must have had affirmatively in mind. The succeeding years brought immigrants from Eastern, Southern and Middle Europe, among them the Slavs and the dark-eyed, swarthy people of Alpine and Mediterranean stock, and these were received as unquestionably akin to those already here and readily amalgamated with them. It was the descendants of these, and other immigrants of like origin, who constituted the white population of the country when Sec. 2169, reenacting the naturalization test of 1790, was adopted; and there is no reason to doubt, with like intent and meaning. . . .
>
> What we now hold is that the words 'free white persons' are words of common speech, to be interpreted in accordance with the understanding of the common man, synonymous with the word 'Caucasian' only as that word is popularly understood. As so understood and used, whatever may be the speculations of the ethnologist, it does not include the body of people to whom the appellee belongs. It is a matter of familiar observation and knowledge that the physical group characteristics of the Hindus render them readily distinguishable from the various groups of persons in this country commonly recognized as white. The children of English, French, German, Italian, Scandinavian, and other European parentage, quickly merge into the mass of our population and lose the distinctive hallmarks of their European origin. On the other hand, it cannot be doubted that the children born in this country of Hindu parents would retain indefinitely the clear evidence of their ancestry. It is very far from our thought to suggest the slightest question of racial superiority or inferiority. What we suggest is merely racial difference, and it is of such character and extent that the great body of our people instinctively recognize it and reject the thought of assimilation. (Pp. 213-215.)

While Congress, in using the phrase "white persons," seems to have had in mind principally persons of European stock, Justice Sutherland in the Thind case took care to state that the decision of the court therein did not necessarily mean that no persons of Asiatic birth are eligible to naturalization.

Cases Cited.—The question under consideration was also involved in the case of United States v. Cartozian, District Court for the District of Oregon, July 27, 1925, 6 F (2d) 919, in which it was held that an Armenian was a "white person" and entitled to naturalization as such. In deciding this case Judge Wolverton considered not only the opinions of historians and anthropologists, from Herodotus and Strabo to Professor Franz Boas of Columbia University and Professor Rohrbach of Berlin, as to the origin and racial character of the Armenians, but he also considered the testimony of a number of expert witnesses having special knowledge of Armenians gained through actual contact with them and thorough study of their characteristics and customs. Among these witnesses were Professor Dixon of Harvard, Dr. Barton, former Secretary of the American Board of Commissioners for Foreign Missions, and Mr. Vartan Malcolm, an attorney of New York City of Armenian origin. The latter testified that, according to the Census of 1920, there were then in the United States 52,840 persons of Armenian birth or parentage, of whom 10,574 were naturalized. As to the question of their being readily assimilated, he testified that an examination of 339 Armenian men showed that 257 were married, 125 to Armenian girls and 132 to native white Americans and Europeans. The conclusion of the court was summed up as follows:

> The testimony here adduced would seem to meet the concept essential to eligibility for naturalization under section 2169, R. S., first, that Armenians in Asia Minor are of the Alpine stock, of European persuasion; second, that they are white persons, as commonly recognized in speech of common usage, and as popularly understood and interpreted in this country by our forefathers, and by the community at large, when section 2169 was adopted by Congress, and later confirmed; third, that they amalgamate readily with the white races, including the white people of the United States. (P. 922.)

The case of Hidemitsu Toyota v. United States, decided by the Supreme Court on May 25, 1925, involved the question whether the naturalization of a Japanese who had served in the Coast Guard, a part of the naval forces of the United States, between the years 1913 and 1923 and had received a number of honorable discharges, was lawful under the provision of Section 4 of the Act of June 29, 1906, as amended by the Act of May 9, 1918, c. 69, 40 Stat. 542, or under the Act of July 19, 1919, c. 24, 41 Stat. 222, or whether the provisions of Section 2169 of the Revised Statutes made his naturalization unlawful. The Acts of Congress mentioned provided for the naturalization of aliens who had served in the armed forces and had been discharged therefrom without the necessity of their proving a residence of five years in the United States.

In Ozawa v. United States, 260 U. S. 178, the Supreme Court had held that the naturalization of a Japanese was unlawful because he could not be regarded as a "white person," within the meaning of R. S. 2169. The Supreme Court held in the Toyota case that the limitations of R. S. 2169 were applicable to discharged soldiers and sailors, as well as other aliens, and that the naturalization of Toyota was unlawful and void.

FREEDOM OF OPINION AND EXPRESSION

By Walter Nelles

Of the New York Bar

Wilson's Prediction.—Early in 1917, his war message written but not yet transmitted, Woodrow Wilson sent for his friend Frank Cobb, the editor of the New York World, apparently to ease his mind a little on the hard necessity of war which must strike down the ordinary privileges of free speech and press. "Conformity would be the only virtue," said the President, "and every man who refused to conform would have to pay the penalty." He thought the Constitution would not survive it; that free speech and the right of assembly would go. He said that a nation couldn't put its strength into a war and keep its head level; it had never been done.

Effect on Straight Thinking.—The prediction was justified; and the "mobilization of the mind of America" worked so well that it has left that organ still somewhat incapacitated for independent thinking. It is easy for a prejudice to prevail by its mass. Perhaps, indeed, the greatest, if not the only, value of extremist doctrines which offer themselves as targets for repression—Bolshevism, for example—is their stimulation of more moderate thinking about the breakdown of social health which they reflect. While taboos of extremist views prevail, moderate opinion in the same field scarcely dares expose itself to the danger of assimilation. At present organized propagandas attribute to the concealed influence of Moscow not alone libertarian protests against the prosecution of Bolshevists in America for advocacies without action, but even such extremely humanitarian proposals as the Child Labor Amendment.

Silencing Visitors.—The anti-radical taboo remains, both strong and undiscriminating. The mild and moderate Mr. Arthur Henderson was prevented, October 23, at the instance of the National Security League, from addressing a Y. M. C. A. at Hartford. The State Department has lately refused passport visas to Mr. Saklatvala, a Communist member of the British Parliament, and to the Countess Karolyi. In the spring Count Karolyi was admitted to the United States only upon his promise of political silence. In the case of Saklatvala there may possibly have been a presumption that his views are such as disqualify him by law from visiting the United States. Those in a position to know are positive that the Countess Karolyi's views are not of such a character. In both cases the State Department's investigation was *ex parte*, and in neither case has a fact basis for its ruling been disclosed.

War Time Court Decisions.—War cases had previously emasculated the conception of free speech as a constitutional right, holding, for example, that verbal opposition to the war might be punished, upon supposition of its tendency to bring about obstruction of recruiting, even without tangible evidence that recruiting was obstructed (Schenck v. U. S., 249 U. S. 47). Justice Holmes at that time managed to save the point that speech was not punishable for itself, but only when "the words used are used in such circumstances and are of such a nature as to create a clear and present danger that they will bring about substantive evils that the State has a right to prevent."

Gitlow Advocacy Case.—June 8, 1925, the Supreme Court settled contrary to libertarian contentions, the main principle of constitutional law as to the punishment as crimes of immoderate radical advocacies (Gitlow v. New York, 45 Sup. Ct. 625, Dissenting by Justices Holmes and Brandeis).

The New York statute involved in the Gitlow case, like the "criminal syndicalism" laws of other states, undertakes to punish advocacy (in the particular case, of general strikes to bring about proletarian dictatorship) for itself, irrespective of circumstances in which it might entail "clear and present danger." "Whatever may be thought," said Justice Holmes, "of the redundant discourse before us it had no chance of starting a present conflagration."

The majority of the court held, however, that such advocacies involve danger "by their very nature"—danger which the State cannot be required to measure in each instance "in the nice balance of a jeweler's scale." The court refused to weigh any compensating public interest in tolerating immoderate advocacies as a barometer of the discontents from which they spring and stimulus to sober reflection, or to admit any analogy between prosecutions for such advocacies and the eighteenth century prosecutions for sedition by which our constitutional guarantees of free speech and press were inspired.

Pardons.—Gitlow was pardoned by Governor Smith of New York, December 11, on the ground that he has been "sufficiently punished for a political crime." Except in Pacific Coast States (and a few cases elsewhere still pending on appeal) all persons convicted of "criminal syndicalism" and the like have now been released by pardon, commutation, or expiration of sentence, and no new prosecutions for doctrines are being instituted. Some seventy persons are still serving sentences for "criminal syndicalism" in California.

Punishments for Association.—Another important constitutional question—that of the validity of the "guilt by association" sections of "criminal syndicalist" laws—is raised by the case of Miss Charlotte Anita Whitney, long known for devoted zeal in social service, who was convicted in California solely for association with radical organizations; there was no evidence that she had personally emitted any proscribed doctrine. Since dismissing her appeal on the ground of want of jurisdiction on October 19 the Supreme Court Bar on December 14 directed a re-arrangement which will include both the technical question of its jurisdiction and the merits of the case.

In that state criminal prosecutions have to some extent been replaced by summary punishments under an extraordinary injunction which in effect makes "criminal syndicalism" a contempt of court (see Matter of Wood, 227 Pac. 909). In the State of Washington Elmer Smith, an attorney, was disbarred on February 24 (two judges dissenting) for speeches held to amount to advocacy of I. W. W. principles; in the same State, membership in the I. W. W. has been held a bar to naturalization (In re Olson, 4 Fed., 2nd, 417).

Strike Cases.—Elsewhere than on the Pacific Coast, by far the greatest number of interferences by public authority with freedom of expression have been in cases of strikers. In West Virginia 138 strike pickets were arrested in May for contempt of injunctions. In Illinois an anti-injunction law, passed in June, has been sustained by a court at Chicago (see also, Vulcan Detinning Co. v. St. Clair, 145 N. E. 657). In many parts of the country meetings of strikers have been prevented or broken without proof that the meetings were unlawful. For attempting, over police objection, to hold a meeting of protest against such suppressions, Roger Baldwin, director of the American Civil Liberties Union, and seven others were on March 31 found guilty at Paterson, N. J., of unlawful assembly.

Ku Klux Klan Cases.—Demonstrations for nativism, as represented by the Ku Klux Klan, have in several instances been disrupted by mobs. And meetings offensive to Klansmen have been objects of mob violence in regions where the Klan is powerful. In the December *Forum* Dr. Hiram W. Evans, Imperial Wizard of the Klan, states frankly its basic doctrine "that the pioneers who built America bequeathed to their own children a priority right in it, the control of it and of its future, and that no one on earth can claim any part of this inheritance except through our generosity." Nativism is obviously an expression of the same primitive instinct as Bolshevism—the instinct to power for oneself, one's own family, tribe, gang, or class. At the same time we crush the punier "will to power" that expresses itself in clamor for an "industrial mass action."

Oregon School Cases.—One of the first fruits, it is generally believed, of the political power of the Ku Klux Klan was the Oregon statute making it compulsory for children to attend the public schools. The Supreme Court held unanimously on June 1 that this act was unconstitutional (Pierce v. Society of the Sisters of the Holy Name; Same v. Hill Military Academy). The court said: "The fundamental theory of liberty upon which all governments in this Union repose excludes any general power in the State to standardize its children by forcing them to accept instruction from public teachers only."

Evolution Cases.—While the Klan on the one hand tries to herd all children into the public schools, it likewise advocates state laws forbidding the teaching of evolution in institutions supported by public funds.

Of the resulting statutes, that in Tennessee has been the object of particular attention. It makes it criminal to teach, in an institution supported by public funds, "any theory that denies the story of Divine Creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals." John Thomas Scopes taught a high school class at Dayton, from a text book prescribed by the State, "that the earth was once a hot, molten mass, too hot for plant or animal life to exist upon it; the earth cooled, the sea formed, and a little germ of one cell organism was formed in the sea; this kept evolving till it got to be a pretty good sized animal, then came on to be a land animal, and it kept evolving and from this was man." Amid prayers and oratory Scopes was tried and found guilty in July. Evidence offered to show the nature of evolutionary doctrine and the indefiniteness of the Biblical teaching was excluded as irrelevant. (See Leslie H. Allen, *Bryan and Darrow at Dayton.*)

The principal constitutional objections on appeal are (1) that the statute gives a preference to Fundamentalist religious establishments and is otherwise discriminatory; (2) that the legislative power over the curriculum of public instruction is exceeded by a requirement to falsify a branch of science authorized to be taught. Bryan's contention (not unmixed, to be sure, with appeals to literalist faith) is that the statute does not in any way attempt to make the Bible the "yardstick of learning;" it simply expresses the people's will that their public funds shall not be used for teaching that conflicts with it.

Perhaps the most reassuring utterance of the year, indicating as it does response to public opinion as well as an attempt to lead it, was this of President Coolidge before the American Legion October 6: "It is the ferment of ideas, the clash of disagreeing judgments, the privilege of the individual to develop his own thought and shape his own character, which makes progress possible. It is not possible to learn much from those who uniformly agree with us."

BOLSHEVISM IN THE UNITED STATES

By Benjamin Stolberg

Journalist and Publicist, New York

NATURE OF THE MOVEMENT

The largely nonsensical character of practically the entire literature on American Communism, whether put out by the Bolsheviks or by the Bolshephobes, is due mainly to their common basic assumption that Bolshevism in the United States is a genuine social movement. Strictly speaking, it is not a *movement* at all, for it lacks the requisite indigenous cultural background. It is a *mirage*, refracted by the Bolshevik revolution across half the globe from an almost incommensurate industrial culture and a completely disparate national history. Hence the need of continuous and sensitive reference to its Russian sources.

The Communist group in this country is very sharply delimited, in spite of such catch words as "parlor Bolshevik" and other brummagem terms which connote its wide and camouflaged diffusion through American society. It is organized into a highly disciplined political party — the "Workers' Party," which is avowedly under the dictatorial mandate of the Communist International. The Party's aim is to train its members into professional revolutionaries, expert in the technique of "Leninism," which comprises a series of revolutionary "steps" toward the Communist Atlantis. First the Workers' Party means to "capture" our labor movement (on which task it is now supposedly engaged). With this "class-conscious proletariat" it would proceed to "capture" the capitalist state (or rather, one must suppose, the Federal Government and the 48 states). Finally, the victorious revolutionary leaders ("the intelligent militant minority") would establish the Proletarian Dictatorship, which is to "wither" in the exact proportion in which it habituates the American people to a life of Communist brotherhood in syndicalist guilds. This fantastic objective is the literal program of the Workers' Party. But the exigencies of American life force it to shift constantly from this extreme state syndicalism (Bolshevism) to mild third party action; which reversals it rationalizes in "party theses," all couched in a strictly Bolshevik vocabulary.

The Workers' Party was openly organized in December, 1921, as a fusion of several secret Communist sects, which had split from the Socialist Party in 1919. At its fourth annual convention in Chicago in August, it reported a national membership of a little over 20,000: its actual dues-paying membership was 16,200, an increase of almost 5,000 since its organization. It is organized into 17 language federations, since most of its members are foreign-speaking and a still larger percentage are non-citizens. At this moment the Party is trying to reorganize, or at least to cross-organize, on the more indigenous basis of "shop nuclei" in order to acquire a more American complexion.

By far the largest and most conservative constituency are the Finns, whose strong coöperative societies have joined the Party in a body. They number about 6,500. The next largest group are the Russian Jews, mostly in the needle trades. They number about 2,000, out of almost 250,000 Jewish workers in the clothing industries. But these Jewish Communists exercise a disproportionately strong influence on the Jewish workers, whose long militant tradition against the sadism of the Czarist regime, naturally renders them sympathetic to their revolutionary fatherland. Then come the South

Slavic, the Lithuanian, the Russian and English-speaking federations, with a membership of a little over 1,000 each. The other federations, with a membership of from 500 down to 80 in the order of their size, are the Ukrainians, Czechoslovaks, Letts, Italians, Hungarians, Poles, Germans, Scandinavians, Greeks, Rumanians and Esthonians.

Most of the Party's present income comes from its supporters in this country. The average member contributes about $12 a year, which gave the Party during the last fiscal year $195,000, but of this $33,000 plus $47,000 for assessments and donations goes to the national office. Its corresponding expenditures were $180,000; the deficit of $100,000 was made up by the Communist International.

The Party maintains 23 newspapers—daily, semi-weekly and weekly—and also the *Workers' Monthly*, which reach a combined reading public of 2,400,000. The Party press costs in round numbers about $750,000; the average member pays from $15 to $20 annually on this account.

The 1925 convention of the Party enlarged its Central Executive Committee from 13 to 21 members. William Z. Foster was reëlected to the national chairmanship, which office has since been abolished by Zinoviev. But he is still on the enlarged Executive Committee of the Comintern, with Charles E. Ruthenberg, who has been the national secretary of the Party since 1921.

FOSTER'S EXPERIENCE

There is no better way of analyzing the present struggle within American Bolshevism than by sketching the career of Foster since he assumed its leadership in 1921. Since then he has changed his position on at least five different occasions, every time against his own judgment and at the behest of the Communist International.

Foster is singularly gifted in the attributes of leadership save one, which is fatal. He is the prey of the "lunatic fringe" of his own radical efforts. He was expelled from the Socialist Party in 1909. He quit the I. W. W. in 1911. His Syndicalist League of North America died after a few months of existence in 1912. His International Trade Union Educational League died the same way in 1916. He lost out in the American Federation of Labor even before the collapse of the 1919 steel strike which he had organized. Every time he failed because he knew what he wanted and then impatiently disregarded his own judgment.

He is fundamentally a syndicalist. He wants to amalgamate the trades in each industry into one union. He always has been and is now against political action. Yet, today he is one of the leaders of a political party, which is syndicalist in Russia but necessarily divisive here. He knows that this "drive toward industrial unionism" is an arduous job. Hence his slogan of "boring from within the masses of American labor." But he finds "boring" far too slow. And so he scares these "masses" by revolutionary chimeras which effectively keep him "boring" on the "outside looking in."

In 1920 Foster founded his third syndicalist effort, the Trade Union Educational League, which is now the "industrial department" of the Workers' Party and is affiliated with the Red International of Labor Unions. In his need for moral and financial support he turned, early in 1921, to the recently organized Communist International. The syndicalist character of the Russian revolution completely swept him off his feet. He went to see the Russian leaders, who received him graciously, partly on account of his long and sincerely militant radical career, partly because he was an intellectual working man of Yankee-Scotch-Irish descent. Most of the Communists in this country then were neither workers nor intellectuals nor Americans. The Communist International has been partly financing his activities ever since.

After sundry vicissitudes in the "underground" Communist factions through 1921, he assumed the leadership of the Workers' Party on its formation. By 1923 the Party was well organized, and it began to play its "revolutionary strategy" in our labor movement. Its first "step," under the real direction of Pogany, alias Pepper, the then resident agent of the Communist International with the Workers' Party, at the direction of Zinoviev, and against his own judgment, was "to capture the united labor ticket" of the Farmer-Labor Party which met in convention in Chicago in July, 1923. Thereby he drove out all the responsible trade unionists whom he wished to hold.

The Communists organized a fictitious Federated Farmer-Labor Party, thus bluffing "a united front with American Labor" in the hope of being allowed to join the incipient La Follette movement. Foster hoped against hope that La Follette might permit endorsement by the Federated Farmer-Labor Party, which was to meet in Presidential nominating convention in June, 1924, in St. Paul. Of course La Follette repudiated the fake party. Meanwhile Zinoviev cabled early (May, 1924) that the Federated Farmer-Labor Party was to be torn up. Foster's last hope of "boring from within" went glimmering; but he "complied." The Federated Farmer-Labor Party was thrown into the waste basket. And Foster was even weak enough to become the presidential candidate of the Workers' Party, running on a "revolutionary platform" for the White House.

RUSSIAN BOLSHEVISM

Ever since the Soviet revolution the tasks of the Russian government and of the Russian Communist Party have been clearly contradictory. The job of the Soviet government has been all along to deal realistically with Russian national life and its foreign, especially commercial, needs. The job of the Communist International (which is really but an enlargement of the Russian Bolshevik Party) is utopian—international social revolution. Lenin's genius was able to make very effective use of these two contradictory tendencies. Zinoviev, whose own political fortunes are all tied up with the Communist International, protested that Bolshevism must not compromise its international revolutionary ideal. He was being blamed for the failures of the Communist uprisings in Germany, 1918 and 1922, in Italy, 1920, in Hungary in 1919 and in Bulgaria in 1923. Finally, in January, 1925, the situation came to a break in the Russian Communist Party. Trotzky openly accused Zinoviev of revolutionary incompetence and advocated the subservience of the Russian Communist Party, meaning by that also the Communist International, to the interests of Russian industrial and commercial realities.* Trotzky's position was branded as "Trotzkyism," "counter revolutionary" and "opportunistic" and he lost his cabinet position.

AMERICAN RIVALRIES

The reflection of this struggle in Russia threw the Workers' Party into fantastic convulsions. The American Bolsheviks were forced to split into two groups. One faction advocated "in the name of Leninism," "the further Bolshevization of the Workers' Party" or, in plain English, purely economic propaganda among the Trade Unions for One Big Unionism, for strikes, for the revolt against the present labor leadership and for the rest of the syndicalist program. The other faction was still for "a fake united front in the political field with American labor." This faction also wrapped itself in the mantle of "Leninism." Both factions bitterly reviled "Trotzkyism." And in order to have a Trotzky to revile they created one in the person of Ludwig Lore, editor of the *New Yorker Volkszeitung,* the German Communist daily.

AMERICAN PROGRAMS

Foster came out "for the further Bolshevization of the Workers' Party." He saw a chance to revert to his syndicalist tendencies and to push his Trade Union Educational League, which became active in disruptive campaigns in the International Ladies' Garment Workers'

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* Zinoviev, however, was more realistic than Trotzky in advocating the policy of opportunistic pacification of the Russian peasant.

Union, among the shop crafts, the miners, the shoe workers and other trade unions. His program became known as the "Majority Program," because he had two thirds of the Central Executive Committee with him and about three fourths of the membership of the Workers' Party by national referendum. Ruthenberg headed the "Minority Program," which was going to "unite" with American labor in the political field, though American labor refused to "unite" with the Communists. Both factions joined in vilifying Ludwig Lore's "Trotskyism." Foster and Ruthenberg and other Communist leaders made several pilgrimages to Moscow. The Communist International finally appointed a Lett named Grusev, Americanized into Green, to come over and to adjudicate the quarrel as chairman of a "parity committee" created for that purpose.

In mid-summer 1925 the Communist International issued a lengthy statement on "the American Question." Oracularly it gave its blessings to both factions, which both factions avidly interpreted as an "endorsement." It directed the repudiation of Lore, and with him went the German Communist press and most of its German constituency. The real struggle for power between Foster and Ruthenberg began. Foster relied on the clear referendum victory of his Majority Program.

RUSSIAN INTERPOSITION

He was having his way when on August 28 the cable reached the convention from Zinoviev: "The Communist International is highly dissatisfied with Majority. Minority closer to us and more communistic. Demand that Minority gets at least 40 per cent. representation on the Central Executive Committee and at least 50 per cent. on all committees and subcommittees. Non-compliance means expulsion." The referendum vote of the American Communists was overridden and Foster was slapped in the face. But he "complied."

Zinoviev feels now that "the minority is closer to us," in spite of its greater opportunism, because he had to compromise with his revolutionary orthodoxy at home. As was to be expected, the realistic tendencies of the Soviet government were bound to win out against the utopianism of the Communist International. Trotzky is very much back in office. Stalin, whose position as chairman of the Organization Committee of the Russian Communist Party gives him the whole patronage power of the government, is now definitely against Zinoviev. The Communist International is being forced to modify its red talk. Russia wants American recognition. She is now already doing almost 40 per cent. more business with this country than before the war. And so Zinoviev is telling his American comrades that they "need not demand nor even expect . . . immediately a revolutionary" movement in America.

The fact is that an intelligent radical program in American labor does not interest either Zinoviev or Losovsky, the secretary of the Red international of Labor Unions, who are the real dictators of the Workers' Party. All they want the Workers' Party to do is to make the kind of noise which to them is worth approximately $100,000 a year: to break up Socialist meetings, to propagandize disruptive "slogans" in our labor movement, to fish in the murky waters of our race problem, to stage "protest meetings" against this or that. Of course the very championship of any cause by the Communists hurts it in this country. But it makes good political hokum for Zinoviev and Losovsky in Russia, who thus can point to their international effectiveness. But whenever the political and trade relations between the United States and Russia are straightened out, the Workers' Party will undoubtedly find itself entirely left in the lurch by Moscow. Its moral and financial support will have to be wholly indigenous and chances are that it will decay into much the same sort of doctrinaire sectarianism which characterizes the Socialist Labor Party.*

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* For a more detailed discussion of the relation between Russian and American Communism see Benjamin Stolberg, "The Peter Pans of Communism" (*Century*, June, 1925).

III. CITIZENSHIP AND PERSONAL RIGHTS

STATISTICS OF NATURALIZATION AND CITIZENSHIP

By Richard M. Flournoy, Jr.
U. S. Department of State

Figures of 1925.—The statistics contained in the Report of the Commissioner of Naturalization for the year ended June 30, 1925, are interesting and in some respects surprising. A table (*Report*, p. 42) shows the number of aliens admitted to citizenship during the year, arranged by nationalities. It is surprising to find that the Poles head the list with 27,134, or 17.80 per cent. of the whole number, 152,457. Italy comes second with 26,137, or 17.14 per cent, the British Empire third, with 23,815, or 15.62 per cent., Russia fourth with 15,692, or 10.29 per cent., and Germany fifth, with 8,569, or 5.62 per cent. Only 1,030 Frenchmen were naturalized, or .68 per cent. of the total. Of Central and South Americans only 189 were naturalized, or .12 per cent., and of Mexicans only 101, or .07 per cent.

It is likely that in many cases naturalization was procured in order that the persons naturalized might be able to facilitate the entry of near relatives into the United States as non-quota immigrants, under the provision of Section 4 (a) of the Immigration Act of 1924, or as preferred quota immigrants, under the provision of Section 6 (a) (1) of the same Act.

Figures of 1920.—With relation to this matter it is interesting to note some of the figures contained in the Census of 1920.

Total population of the United States and outlying possessions	117,859,495
Population of Continental United States	105,710,620
White	94,820,915
Negro	10,463,131
All others	426,574
Native white	81,108,161
Native parentage	58,421,957
Foreign or mixed parentage	22,686,204
Foreign-born white	13,712,754
Naturalized	6,479,159
Unnaturalized	7,233,595

Race Figures.—The table in the 1920 Census showing the numbers of foreign-born persons in the United States and the percentage naturalized by countries of birth is very illuminating.

The contrast between the percentages of naturalization in cases of persons born in countries of Western and Northern Europe and the percentages of naturalization in cases of persons born in countries of Southern and Eastern Europe is striking.

Of the Welsh 72.9 per cent. were naturalized; the Germans come next with 72.8, Luxembourgers 72.5, Danes 69.2, Swedes 69, Norwegians 67.3, Irish 65.7, Swiss 64.9, English 63.1, Scotch 60.9. On the other hand the table shows that of the Russians only 40.2 per cent. were naturalized; of the Austrians 37.7, Hungarians 29.1, Italians 28.1, Poles 28, Yugoslavs, 25.2, Greeks 16.8, Portuguese 16.4, Bulgarians 12.1, Spanish 9.9, Albanians 7.4.

CHANGES IN ELECTORAL LAWS

By Charles Kettleborough
Director of the Indiana Legislative Bureau

The distinguishing characteristic of the laws enacted in 1925 relative to electoral procedure is the conspicuous absence of any important changes. Such modifications as have been effected relate exclusively to the more adequate functioning of electoral agencies which are already in existence.

Registration or Enrollment.—The changes effected in registration procedure were comparatively unimportant, and include the time, duration and hours of the registration period; the preparation, preservation and purging of permanent registration records; the registration of migrants and absentees; the extension of registration to or its exclusion from rural territory; the qualifications of registrants; and the compensation of registration officials. In New Jersey the registration period was changed from September to May and June; in Rhode Island from December to June; in Idaho and Missouri the registration period was slightly abridged and readjusted; and in Florida, the registration hours in the larger counties are more specifically prescribed.

For the purpose of relieving the voters of a civic duty which is somewhat reluctantly performed, there is a marked tendency to introduce the permanent registration system by virtue of which a voter who is once registered is not obliged to re-register unless he moves from the electoral district in which he is enrolled. A necessary auxiliary procedure to the permanent registration system is an inexpensive and certain method of purging the lists of voters who have moved, died or been disfranchised. Laws establishing the permanent registration system were enacted in Idaho and Delaware; provision was made for the preservation or progressive purging of the registration lists in Idaho, Wisconsin, Indiana and Connecticut.

The rapid growth of cities has led to a ceaseless migration of voters from one constituency to another and the diversification of industries keeps an appreciable per cent. of the electorate on pilgrimages in regions remote from the voting precinct. To afford these two elements of the electorate the opportunity to exercise the franchise, Idaho and Connecticut have provided a method for the registration of voters who move from one precinct to another between registration and election days; while Minnesota, New York, New Jersey, and Utah enacted laws enabling voters who are unavoidably absent on registration days to register by mail or by applying in person to some designated public official. As the purpose of registration is to prevent fraudulent voting, and as the voting of non-residents in rural and sparsely settled precincts is remote, there is a manifest tendency to restrict the enrollment of voters to cities and towns only, as is provided for (by somewhat different methods of approach) by laws enacted in Missouri, Wyoming, Massachusetts and Connecticut.

Since the introduction of woman suffrage, the qualifications of registrants, including the provision that the age may be given as "over 21 years," have been modified by Missouri, New York and Wisconsin. Two somewhat anomalous provisions were introduced into the laws of Oregon and Indiana. In Oregon, the secretary of state is authorized to submit the registration lists to the respective postmasters of the state to be checked and verified, and in Indiana a county registration board uses the primary poll books as a basis for the compilation of the lists of voters. Other unimportant provisions merely provide for an increase in the compensation of registration officials in Florida, Pennsylvania and North Dakota; the combination of urban and rural territory in registration precincts in Missouri; and changes in the registration applications in Connecticut.

Absent Voters.—The only changes made in the absent voter laws relate to the elections and classes of voters to which the laws are made to apply, and to an abridgement of the time within which applications for and distribution of ballots may be made. In Minnesota, absent voters were authorized to participate in special primary and special elections; and in Nevada and Vermont in municipal elections, to which Vermont also adds county elections. The classes of voters who may vote by absent voter ballot were extended to include voters who are actually absent, in New Hampshire and Vermont; to voters who are ill, in New Hampshire, South Dakota and Vermont; to voters who are physically disabled; in South Dakota and Vermont; to students in college and the wives of male citizens who accompany their husbands, in New York; and to railway employees and the members of the immediate families of commercial travelers and railway employees, in Oregon. The time within which ballots may be applied for and distributed was abridged in Illinois, Vermont and Wisconsin; and Minnesota permits notaries public to act as attesting witnesses in the execution of absent voter ballots.

Voting Machines.—By a law enacted in Maine, the use of ballot boxes with mechanical devices for receiving, registering and endorsing the ballots deposited therein is authorized. When voting machines are used in Iowa, the party row beneath the Democratic and Republican tickets must be left vacant. New York requires the appointment of custodians to put voting machines in order prior to each election.

Initiative.—In Nebraska, initiative measures, instead of being printed in pamphlet form, as heretofore, will be published in all of the newspapers of the state, and the secretary of state has authority to delegate that duty to the Nebraska Press Association. North Dakota prescribed the qualifications for signers of initiative petitions and prohibits fraudulent signing. In Wisconsin, a constitutional amendment providing for the initiative is pending.

Recall.—At the next election, Oregon will vote on a recall amendment to the constitution providing for the recall of all elected officials, but providing that the vacancies so created shall be filled by appointment.

Referendum.—Wisconsin prescribed the elections at which initiated city ordinances may be submitted to a vote; provided for the referendum in school districts having more than 500 voters, on any item, business or subject; and proposed a constitutional amendment providing for the referendum on all laws. In Massachusetts, in submitting questions to a referendum vote, the secretary of state decides whether or not a question of public policy is involved.

Corrupt Practices.—Texas provides that the amount of money which a candidate pays to have his name placed on the primary ballot is not included in the amount as limited by law for campaign expenses. Wisconsin requires all associations which advocate, endorse or oppose any party, faction, group, candidate, constitutional amendment or measure, before receiving contributions or making expenditures, to file its name, officers, and the nature and sources of its income and the purposes of the expenditures. In Massachusetts, the treasurers of political committees are required to make reports even if no money has been received or expended. Registrars of voters, members of town school committees and library directors are exempt from filing their expenses under the corrupt practices act of Connecticut.

Caucuses, Conventions and Nominations.—The Idaho law which authorized the payment by the state of the railroad fare of delegates to the party conventions was repealed. Kansas and Indiana provide for the filing of nomination papers by independent candidates. In Utah, a candidate who is nominated by a convention or committee, cannot have his name on any other party ballot. South Dakota and Montana provide for the election of women as well as men as national committeemen, and Indiana provided for women representatives on all committees. The number of signers on nominating petitions in Minnesota, Missouri, Wisconsin and Massachusetts was changed and prescribed. In Rhode Island, the city and town caucus law was extended to Woonsocket and North Providence; and in Pennsylvania the time for filing nominating petitions was changed. Georgia prohibits any person from attending a political mass meeting or convention unless he is duly registered and qualified; all conventions must be held at the county court house and ten days' notice thereof must be given.

General Elections. — With four rather significant exceptions, the changes effected in general election procedure affect the functioning only of agencies already in existence, but add nothing of consequence to the electoral facilities already provided for by law.

1. Laws enacted by Minnesota, Oregon, South Dakota and Wyoming provide that the names of the candidates for President and Vice-President shall be printed on the ballot along with the names of the presidential electors.

2. A constitutional amendment conferring full suffrage on women was adopted in Missouri by a vote of 175,580-152,713, and a similar amendment is pending in Rhode Island.

3. In Oregon an amendment to the Constitution was adopted by a vote of 184,031-48,645, which provides that persons who cannot read and write the English language cannot vote.

4. Utah provided for double election boards in districts having 200 or more voters; one set of officials acts as receiving judges and the other as counting judges; when a ballot box contains 20 ballots, it is delivered to the counting judges and the count is carried on while the ballots are being cast. Both sets of judges join in making the returns.

The laws making detailed changes in general election procedure provide for the method of marking, the printing and form of ballots, prescribed the number to be furnished to each precinct and for the destruction of the ballots after the election; requiring election officials to post the result of the election in the precinct as soon as the count is completed; providing where the report of the vote cast shall be filed; prescribing the method of canvassing the vote; increasing the compensation of election officials; providing that all persons who are within the polling places at closing time shall be permitted to vote; fixing the date of elections and designating the hours when the polls shall be kept open; adjusting the general election law to cities having home rule charters; providing for the division of cities into wards where wards have been abolished by home rule charters; prescribing changes in the form of election notices; poviding for the election of non-partisan candidates; devising a method by which a voter who moves from one town, city or ward to another prior to the election may retain his legal residence; providing for the furnishing, care and preservation of election supplies; authorizing voters who need assistance to select near relatives instead of election officials and affording assistance to voters who cannot read the English language; perfecting the laws concerning recounts and election contests; creating additional voting precincts; and providing for the appointment of additional election clerks in certain cities. The Wisconsin law providing for the provisional appointment of election officials with a hearing as to their qualifications was repealed.

Primaries.—The only extension of the primary during the year was to the judge of the superior court of Cook county, Illinois, and to Pender and Montgomery counties, North Carolina; and the only exemption was Randolph county, North Carolina. Existing laws were amended in detail concerning the withdrawal of candidates, the filing of application of candidacy and objections to certificates of nomination, the filling of vacancies occurring after the primary is held, the method of certifying non-partisan judiciary candidates, the method of canvassing the vote and arranging the names on the ballot and providing that the names of candidates may appear on only one party ticket. In Nebraska, no candidate is certified unless he receives at least 5 per cent. of the vote cast by his party. Parties which may use the primary in Nebraska are those which cast 5 per cent. instead of 1 per cent. as formerly of the total vote; and the ratio in Nevada was reduced from 10 per cent. to 5 per cent. In New Jersey, the date of the regular primary was changed from the 4th Tuesday in September to the 3d Tuesday in June, and in presidential years from the 4th Tuesday of April to the 3d Tuesday of May; and the date in Montana was changed from the 70th to the 91st day before election.

Oklahoma adopted a provision, affording a first, second and third choice of candidates at the primary. Arizona voted upon and California has proposed a measure providing that the person who receives 51 per cent. of the primary vote is the only name placed on the ballot. The Arizona measure was defeated by a vote of 13,166-34,360. In Georgia, candidates for the general assembly and judge of the superior court in counties of 200,000 must, in qualifying for the primary, designate the incumbent whom he wishes to succeed.

DIVISION IV
THE NATIONAL GOVERNMENT

CHANGES IN THE FEDERAL CONSTITUTION

By Arthur N. Holcombe
Professor at Harvard University

The Child Labor Amendment, proposed by the Congress, June 2, 1924, was not well received by the states, and before the end of January, 1925, it had been rejected by more than one-fourth of the states, while only three states had ratified it. One state, which ratified it, subsequently rescinded its ratification. Thus there was no prospect of any early regulation ratification of the amendment, and it was clear that it could never be ratified unless some of the rejecting states should reconsider and reverse their action. Nevertheless, the advocates of federal child labor refused to abandon the fight, asserting that they would continue their efforts until the proposed amendment should become part of the Constitution.

This rejection of this proposed twentieth amendment by more than one-fourth of the States raised a number of interesting questions. (1) Is the Department of State called upon to proclaim the defeat of an amendment in the same manner that it proclaims ratification of such a measure? (2) If such a proclamation were issued and if a sufficient number of States to change the result subsequently reversed themselves, what would happen? (3) If a State votes to ratify an amendment, then changes its mind and votes against it, which action is valid? (4) How long may the States be allowed to vote one way or the other, or both ways, on an amendment? The situation, resulting from the rejection of the child labor amendment by more than a fourth of the States, was unparalleled, and caused a growth of interest in proposals for the clarification and modification of the provisions of the Constitution relating to its own amendment.

Wadsworth-Garrett Proposal.—The only such proposal to be discussed on the floor of the Congress during the short session of the sixty-eighth Congress was the so-called Wadsworth-Garrett amendment. This amendment, originally introduced into the sixty-seventh Congress, proposes a substitute for Article V of the Constitution, under which the following changes would be made in the existing practice: (1) The members of at least one branch in each of the State legislatures which may ratify a proposed amendment to the Federal Constitution must have been elected after such amendment shall have been proposed. (2) Any State may require that ratification by its legislature be subject to confirmation by popular vote. (3) Until three-fourths of the States shall have ratified a proposed amendment, or more than one-fourth shall have rejected it, any State may change its vote. However, the Congress took no action on this proposed amendment prior to its adjournment on March 4.

Hill Proposal.—January 3, 1925, Representative Hill of Maryland introduced a bill, designed to clear up some of the doubtful points in the amending procedure, pending action on the proposed Wadsworth-Garrett amendment or some alternative measure. This bill would require the Secretary of State to certify when more than one-fourth of the States had rejected a proposed amendment to the Constitution, as he is now required to certify when three-fourths have ratified, and thus put an end to the uncertainty concerning the status of the pending child labor amendment. No action was taken by the Congress upon the bill. The authority of the Congress to limit the time within which the States might act upon a proposed amendment was discussed in the Senate, and the opinion was expressed that a "fair inference" from the Supreme Court opinion in the case of Dillon vs. Gloss (256 U. S., 368) would be that ratification must be "within some reasonable time after the proposal."

Unratified Amendments. — Meanwhile, it was pointed out, five proposed amendments to the Federal Constitution, including the child labor amendment, are still awaiting action by the states. Two date back to 1789. One was proposed in 1861 in the hope of averting the Civil War, and one was proposed in 1810. One of the earliest was actually ratified by Ohio as late as 1873, which was eighty-four years after its original proposal.

Norris Proposal.—Another proposal to amend the Federal Constitution, which was discussed both in the Senate and in the House during the short session of the sixty-eighth Congress, was the so-called Norris amendment to change the dates for the inauguration of the President and the convening of the Congress. This proposed amendment provides that a newly elected Congress shall meet on the first Monday in January, following its election; and that a newly elected president shall be inaugurated on the third Monday in January. Thus every Congress would meet in its first regular session two months after election instead of thirteen months later, as under the present practice. The new Congress would canvass the electoral votes for president, instead of the expiring Congress as under the present practice; and would choose the new President in case of no election by the Electoral College. The proposal to shorten the time between elections and entrance upon the duties of office and to do away with the present short session of the expiring Congress, following new Congressional elections, met with favor in both branches of the sixty-eighth Congress, but no definitive action was taken upon it.

Miscellaneous Proposals. — Seven fresh proposals for the amendment of the Federal Constitution were introduced into the last session of the sixty-eighth Congress in 1925, but none of them got beyond the committee stage in either House. One of these, which was recommended by Secretary of the Treasury Mellon, would give the Congress power to tax State and municipal bonds, which are now tax-exempt; and two others also related to taxation. Two related to the apportionment of Congressmen among the States, and two to Congressional or Presidential elections. The failure of the Congress to make any apportionment of Congressmen following the census of 1920, as required by the Constitution, doubtless stimulated interest in the section of the fundamental law relating to Congressional elections and apportionments.

THE PRESIDENT AND VICE-PRESIDENT

By James L. Sellers
Professor at the University of Wisconsin

PRESIDENT CALVIN COOLIDGE'S CHARACTERISTICS

During 1925 the United States has had the services of the President at his steadiest. The election of 1924 assured him that the overwhelming majority of the electorate had confidence in his integrity and approved of his conduct of the administration.

More than one year and seven months' service as president have enabled him to take soundings and assume command with a firm hand. The conclusion of a presidential term gave ample excuse for incompatible cabinet members to resign. The administration has become his own—as near to his wishes as the circumstances of practical politics will permit.

Upbringing. — President Coolidge descends from a line of Puritan ancestry dating back to the migration of John Coolidge to Watertown, Massachusetts, in 1630. His antecedents have thus absorbed the complete history of New England. American traditions and institutions are the outward expression of the lives of these people. Thus when Calvin Coolidge talks on American principles and institutions it is not only the President who speaks but it is the voice of the generations of New England. There the most virile principles of political liberty and religious freedom have expressed themselves in the social and political institutions which have been brought forth during three centuries. These have become the pride of the nation.

Calvin Coolidge was born at Plymouth, Vermont, July 4, 1872, the eldest son of John C. and Victoria Moor Coolidge. The story of his boyhood growth, education, and college days at Amherst need not detain us here. His college career was not conspicuous. However, he graduated with honors and the distinction of class orator in 1895, and at once took up the study of law in the office of Hammond and Field at Northampton, Massachusetts.

Coolidge's political career began at the age of twenty-seven as Councilman in Northampton. His advance was not rapid at first but showed a remarkable acceleration. In 1907 he was City Solicitor; Mayor, 1910-11; in the State Senate 1912-15; President of the Senate 1914-15; Lieutenant Governor 1916-18; and Governor of Massachusetts 1919 and 1920. His nomination as Vice-President in June, 1920, brought him to the Presidential chair August 3, 1923.

The rôle of President, invariably difficult, is doubly so when taken by one not elected to the position. The cabinet had been selected, the legislative program for the administration outlined and begun. The new incumbent was pledged to support his predecessor's program. Whereas the originator of a program would be comparatively free to vary his recommendations according to the dictates of experience, the inheritor of a program is bound to see it through or at least give no indication of his deviations.

Personality.—It is true that President Coolidge is not a figure conspicuously different from many of his fellows. He is of medium size, five feet ten and weighs one hundred and fifty pounds. A man of good figure and well-groomed appearance. His business dress and conduct are not particularly striking. He has no avocations which give subject matter for newspapers and barber shops. He has no taste for small talk. His countenance is pleasant but usually serious. He does not think aloud. When he talks he chooses a national subject. This may explain some of the comments of critics but it does not explain the President's remarkable popularity.

Popularity.—In the absence of the fashionable social graces and the mixing qualities of the politician, his popularity must rest on other grounds. The people may not know Coolidge intimately but they feel confident of his sincerity. He talks on economy, and Americans at heart still believe in individualism. Conditions in America and in the world at large are such as to point the President's appeals. His doctrines are intelligible to the common man. The carefully prepared speeches of the President have been given wide publicity by both radio and the press. Millions of people have heard his excellent radio voice, and feel that they know him. There is nothing in the personality or ideas of Mr. Coolidge which sets him apart from the majority of the people and prevents them from feeling that he is one of them.

Independence.—The election of 1924 gave President Coolidge a free hand.

It proved his astounding popularity despite his refusal to participate in a campaign. Here was a man who neither campaigned by public speaking, nor writing and was almost niggardly in granting interviews. He was not aloof but apparently indifferent to opponents' attacks and unconcerned about being known by the public. Perhaps it was tend-to-business attitude which inspired the confidence of the people at large, and polled him 15,500,000 votes in November, 1924.

Relations to the Public.—Despite his refusal to campaign, President Coolidge is a good mixer. He meets his fellows upon the level. He is not above swapping stories with the shoe-maker and taking his exercise walking the busy streets where he is an observing student of human nature. The President is particularly effective in speaking to business and professional men where his grasp of economic and constitutional principles is appreciated.

The President is also a good entertainer. The White House is the seat of a charming hospitable home where an attractive family enjoy life. Perhaps no occupants of the national mansion can be unconscious of the public attention which is bestowed upon them, but the seeming naturalness of the Coolidges has more than satisfied the public with their conduct.

The President does not take well to the red headline type of publicity. He meets the press correspondents, and they are privileged to ask questions in writing which the President answers as far as he thinks advisable. He, however, is unwilling to announce policies or discuss possible contingencies when no practical or vital question is involved. The President does not expect to be quoted directly. He seems to have succeeded in instilling some sense of responsibility into these correspondents.

The President, though a lawyer, has a journalist's judgment of publicity values. He chooses with strategic vision the occasion for public appearances. In his speeches throughout the country he has reached many sections and appeared before all elements of society. The farmers heard him at Chicago. He met the Scandinavians at Minneapolis and the World War veterans at Omaha. He spoke on naval policy at Annapolis and on patriotism and its meaning at Arlington and Cambridge. The Congregationalists were welcomed at Washington, and the business men entertained him at New York. His inaugural and budget addresses were intended for the nation at large.

Leadership.—This record of performance has done little credit to the title of "Silent Cal." In fact, few Presidents have worked more consistently and effectively to enlighten and lead the public along the course which he has charted. He has shown a tendency to conduct an orderly progress rather than to initiate rapid changes of policy. Despite the leisurely pace his speeches have shown positive elements which are worthy of study. We see the President fully and clearly revealed in his more important addresses.

In his inaugural March 4, 1925, he set forth his purposes, his program, and his ideal. These are founded upon certain fundamental traits of human nature which he regards as "the most constant thing in the universe." He holds that "the essentials of human relationships do not change. We must frequently take our bearing from these fixed stars of our political firmament if we expect to hold a true course."

Views on Foreign Policy.—The President emphasizes virile Americanism. He insists that "we have been and we propose to be more and more American." But he does not admit a merely selfish nationalism. For we not only serve our own country best by such a policy but we "most successfully discharge our obligations to humanity by continuing to be openly and candidly, intensely and scrupulously American."

Such a policy neither precludes our participation in world affairs nor eliminates us from membership in the World Court. The President, voicing what he regards as the determination of the American people, declares that we are determined not to become implicated in the political controversies of the Old World, "but America must continue to hold the lead in the new policy of limitation of armament." America stands for arbitration and the same principle should lead to our adherence to the Permanent Court of International Justice. He would have American influence "cast on the side of the reign not of force but of law, and trial not by battle but by reason."

The President seems to recognize that the rights of property and the economic rights of persons are inseparable. It is not property but the right to hold property which the constitution guarantees. Here the President makes no appeal to those without property, but rather trusts to the stimulation of private self-interest and initiative to promote the highest social well-being.

National and State Functions.—In his budget speech of June 22, 1925, the President made these significant remarks. "Unfortunately the Federal Government has strayed far afield from its legitimate business. . . . If we could confine our federal expenditure to the legitimate obligations and functions of the federal government a material reduction would be apparent. But far more important than this would be the effect upon the fabric of our constitutional form of government which tends to be gradually weakened and undermined by this encroachment. . . . The cure lies with the people. It will come when they realize the necessity of state assumption of state responsibilities."

The introduction of this constitutional viewpoint would seem to partake generously of the doctrines associated with Jefferson and Jackson. It is the very antithesis of the much emphasized doctrine of the Republican party during the first decade of the present century. The view seems to be well received, and the President is the spokesman of those who oppose the doctrine of national centralization which swept the country as by storm some twenty years ago.

National Defense.—President Coolidge spoke before the Naval Academy June 2. This was an opportune occasion to discuss policies of National defense. Here he reiterated and enlarged upon the principles announced in his inaugural address. He expressed the purpose to maintain such forces as comport with our dignity and security. He pointed out that the functions of the navy were to promote peace. It was in driving home this point that he said: "If we are to promote peace . . . we must call in the moral forces of mankind. The suggestion that any other people are harboring a hostile intent toward us is a very serious charge. We would not relish having our honorable motives and peaceful intentions questioned. Others cannot relish having any of us question theirs. We should not forget that the world over the general attributes and one of the strongest attributes of all peoples is a desire to do right."

Speaking before the American Legion October 6 he assured them that the United States had a larger army and navy than ever before in peace time. However, this is no point of pride with the President. He has on various occasions expressed the purpose to continue to promote the movement for further limitation of armament. This he considers an American policy and every opportunity should be utilized to promote it.

The obligations of citizenship is a subject to which the President has devoted much thought. He points out that Americanism does not depend upon place of birth, religious sect, language or racial stock. The privileges of liberty instead of being easy to enjoy are in reality, to him, highly difficult responsibilities. The responsibilities are due to the necessity of the citizen so conducting himself as to reduce the functions of government to a minimum. To the President the chief functions of government are to maintain order; provide security for persons and property, and set up the instrumentalities for the administration of justice. If the citizens can reduce the functions of government to this fundamental minimum, costs of administration will be small.

The problem of law enforcement has been particularly vexing during the past months. The Chief Executive would necessarily be compelled to formulate a policy. He stands for vigorous and firm enforcement. The thinking public concede that "laxity of administration reacts unfavorably upon public opinion," and since local administration has failed upon many of its attempted reforms (especially prohibition) nothing remains but to undertake it as a national movement.

The failure of local government, the President observes, has had a demoralizing effect in every direction. "What America needs is to hold its ancient and well-charted course. . . . A country conceived in the theory of local self-government . . . gives the largest promise to freedom and the development of the individual. . . . The passing of responsibility from local governments to the state and from the state to the nation . . . to pay their bills and tell them what to do is not self-government."

Political Philosophy.—If one were to summarize the President's political philosophy and constitutional tenets he would find them similar to those of the fathers of the constitution. He is a strong believer in liberty and the rights of the individual which leads him to restrain governmental action wherever possible. That same confidence in the individual leads him to prefer local to central governmental function for all problems of a local nature. He believes private initiative and enterprise the best guarantee of business integrity, efficiency and honesty. Thus to him government should be only regulatory and not productive.

Coöperation.—This survey of the President's speeches reveals a statesman who has digested the problems and theories of government. The administration of practical affairs requires application of these theories. This the President cannot do alone. He is dependent upon the support of Congress and the numerous administrative officials whom he employs and directs. He must obtain the coöperation of the legislature and his subordinates.

The coöperation of Congress is sometimes difficult to obtain. In dealing with it the President has shown both reserve and tact. He has exhibited no undue anxiety about his own recommendations becoming law. When the Sixty-eighth Congress was about to expire he took no hand in the selection of bills for the final rush of legislation. The President has not overlooked opportunities to elicit the good will and coöperation of Congress. In his inaugural he expressed his wish for coöperation and willingness to share credit for the conduct of the government with that body. It was with a view to facilitate working relations with Congress that the President chose Everett Sanders, Congressman from Indiana, to succeed Bascom Slemp as his private secretary.

VICE-PRESIDENT CHARLES GATES DAWES

A Unique Figure.—The nomination of Charles Gates Dawes for the Vice-Presidency brought a unique figure into American politics. He already had an international reputation: the Dawes Plan for German reparations established his name throughout Europe. In addition to his reputation, Dawes had the type of personality and style of address to furnish campaign headliners. He glories in action and enjoys a fight. It would have been difficult for the party to find a better field marshal to lead their campaign.

Dawes is a native of Marietta, Ohio, born August 27, 1875. He comes from the Puritan seed that was planted there in the first settlement of the Ohio Company, and numbers among his ancestors that astute politician, Manasseh Cutler, who was the active agent in securing the grant to the Company. His parents, General Rufus Dawes and Mary Gates Dawes, belong to its early families. Young Dawes attended two colleges. He received his bachelor's degree from

Marietta College, had a legal education at Cincinnati Law School, and practiced law at Lincoln, Nebraska, from 1887 to 1894. It was at Lincoln that he became acquainted with John Pershing, later commander of the American armies. In 1894 Dawes gave up his professional practice to take charge of certain business interests, and was especially successful as organizer and administrator. His father was a close friend of William McKinley, and the son won the Illinois delegation for McKinley who, as President, made him Comptroller of the Currency. He was defeated in a race for the senatorship from Illinois by Lorimer, and upon his return to business organized the Central Trust Company of Illinois, and became a large figure in the banking world.

The World War.—Occupied with business, Dawes took no active part in politics until the entrance of the United States in the World War, when he entered the army as a major of engineers, a branch of service in which he had some previous training. General Pershing soon discovered his presence in the A. E. F. and called him to his own staff. There he showed his usual initiative, and was made Chairman of the General Purchasing Board for the A. E. F. in France, and a member of the Allied Purchasing Board. He is credited with persuading Great Britain to create this unified administrative service for the allies.

The chance to testify before the congressional committee gave Dawes his opportunity. He was not in the least cowed by these solemn guardians of the public weal. He met the committee in fighting trim and in his replies put the committee rather than the witness upon the defensive. This testimony attracted national attention.

Director of Budget.—When the Federal Budget System was introduced in 1921 President Harding appointed General Dawes first director of the budget. After a year's service he resigned, and was appointed to the Reparations Commission to investigate Germany's ability to pay. The success of the plan recommended by this commission was probably the most important single factor in securing Dawes the nomination to the Vice-Presidency in June, 1924.

Just as in 1900, when Roosevelt did the major campaigning, Dawes took the stump in behalf of his ticket. He proved a very effective canvasser. He is a picturesque figure. He has an active personality whose every motion and position indicates vigor and determination. His speeches are strewn with crisp, snappy phrases with no uncertain meaning. He is the type of personality that "gets across."

Personality.—However, forcefulness is not the only or even chief characteristic of General Dawes' personality. He is a warm and intensely human and companionable man. He is devoted to his family. Young men are attracted by his frank, informal manner. He has the enthusiasm and zeal of the reformer seasoned by a long career in practical business. While his methods and manner appeal to youth his judgment and policies reflect much experience. He has all the qualities to make him a successful leader of a counter-reformation in politics. Since he considers himself a "progressive conservative," this is a fair description of his position.

As Vice-President, Dawes has given indication of the rôle which he expects to play. Soon after election, it became known that he did not desire to sit in the cabinet in a consultative capacity with no administrative responsibility. He has chosen rather to direct his attention to his constitutional duties as President of the Senate.

Senate Rules.—As President of the Senate he will be primarily occupied with applying the rules of that body. These he regards as over-weighted by accumulation of customs and traditions, in such a way as to render the body incapable of registering its own will. He accordingly proposed in his first appearance before the Senate that the rules be changed. The center of his attack was directed at rule No. 22 which permits any Senator to speak one hour upon a measure after the Senate has decided by vote that a vote upon the measure should be taken. Such a rule enables a single senator or a small minority to delay action and often defeat important measures which have the support of the majority.

The Vice-President points out that it is not his intention to deprive the minority of the right to be fully heard, but only to prevent the minority from obstructing the will of th majority. "Who," he asks, "woul dare maintain that in the last analysis the right of the Senate itself t act should ever be subordinate to th right of one Senator to make speech?" This, he holds, woul amount to bartering away the interest of the public, which it is th function of the Senate to promote.

UNOFFICIAL ADVISERS

By James L. Sellers

Professor at University of Wisconsin

Some presidents have brought their most intimate friends into the official cabinet. Others have attempted to command the services of the most popular men in their parties. Again, some have sought men of the most eminent administrative ability. Presidents sometimes rely upon their official cabinet for advice upon all subjects; while others have depended in part upon unofficial advice of outside friends, to help guide the affairs of state.

Personal Relations. — President Coolidge has not, except in the case of Sargent, chosen any intimate friend for a cabinet post. He has selected men of ability for official positions and relies chiefly upon their advice when questions of governmental policy are concerned. Nevertheless, there are times when even a President wants information of non-official character rather than advice; and prefers to get it from intimates rather than from official advisers.

President Coolidge has a small group of admirers to whom he assigns an important part in his political decisions. The first of these is Frank W. Stearns of Boston. He is first in point of intimate friendship, probably first in his devotion to and confidence in the President, and he has the greatest influence with the Chief Executive.

Stearns.—Mr. Stearns is a cotton mill owner and capitalist who was interested in Amherst College. He became acquainted with Coolidge when the latter was a member of the State Senate. They were strongly attracted to each other and Mr. Stearn has been most active since then i promoting Mr. Coolidge's political career. He is a slight little gray ma with a twinkle in his eye. He ha a way of getting things done in quiet manner. He never hesitate when a decision is to be made. H invariably retains his self-control. I appearance he is a very mild littl man, and yet he commands a stingin sarcasm which may be utilized whe the occasion demands. The President enjoys his contacts with Mr Stearns because they understand eac other completely.

Butler.—Senator William M. Butler, as National Chairman of th Coolidge campaign, is naturally high member of the Administratio Counsel. Mr. Butler is a native o New Bedford. He received his lega training at Boston University an then took up practice of law at Ne Bedford from 1884 to 1895. In 191 he moved to Boston and became member of the firm of Butler, Cox Murchie and Bacon. He entered th Massachusetts Legislature as membe from New Bedford in 1890 and continued in the Legislature until 1901 He was President of the Senat 1894-1895. From this position he obtained a control of Massachusetts Republican politics which has continue down to the present time.

Starting as the son of a poor minister Mr. Butler has become a ma of great fortune. He took an earl part in the development of municipa transportation in both New Bedford and Boston. He also has extensive interests in the cotton milling industry. In addition to these interests he has a lucrative law practice.

Mr. Butler has not been an active leader of the masses in politics. He is a sort of chief of staff, who commands the field from the distance and leaves the details to subordinates. He is not a personality to get into the thick of the fray. He has not the geniality and flexibility of the professional politician. Primarily he is a business man, and as such commands the confidence of that class of men. He is a protectionist. In a large measure he has been instrumental in getting the business interests of the country lined up back of the administration.

Others.—The other two men who are nearest to the President are Jim White who is the man directly in charge of the work of the Republican National Committee in Washington, and Ted Clark, the President's personal secretary. Jim White is a genial good fellow who often drops in and talks with the President. He has an abundance of information and news. Ted Clark was Secretary to the late Murray Crane. He also is no novice in the political game and on questions of Massachusetts politics he can supply detail that even Butler might want.

WILLIAM J. BRYAN

Bryan.—The deaths of Mr. Bryan and Mr. La Follette on July 26th and June 18th have removed two of the greatest personalities from American politics. From 1896 to 1912 Mr. Bryan was the undisputed leader of the Democratic party. After that period he remained a powerful influence in party councils, and a determining factor in party success. While the wisdom of some of the measures he advocated has been questioned, the honesty of his purpose to improve the condition of the masses of the people is undoubted.

Mr. Bryan was instrumental in the passage of some important legislation. While his doctrine of Free Silver is still the subject of ridicule it should be remembered that he led the South and West on that issue; he was a member of the administration which enacted the Federal Reserve Act providing for a more flexible currency. Whether national prohibition be good or bad Mr. Bryan must bear a large share of responsibility for its enactment. Bryan's outstanding quality was his oratorical power. Yet he was more than a man of words, he was a man of character.

ROBERT M. LA FOLLETTE

La Follette.—Between the careers of Mr. Bryan and Mr. La Follette many parallels and many contrasts may be drawn. Mr. La Follette was in many ways a man of stronger parts. He was a quicker and keener debater, a more ruthless and unsparing opponent. These qualities have their advantages in a legislative assembly but are probably not political assets with the nation at large. His record for constructive state leadership was without a parallel when he entered the Senate in 1900. The solidarity of that work is evinced by the stability of his home strength.

La Follette's relation to the Republican party was personally unfortunate but publicly most beneficial. He was the most progressive member of his party. He had worked out a set of reforms for his state, many of which might well be applied to the nation. He was the true and natural leader of this reform movement. Yet the old party refused to accept his leadership. By coöperation with the opposition he was able to impose part of his program upon a reluctant administration. His progressive movement, taken over by Roosevelt, gave the Democrats their chance and much of the Progressive program in modified form became law.

La Follette's great service to the Nation, in contrast to his service to his own State, has been in the rôle of leader of the opposition, a useful but not a popular position. As leader of a popular rights movement in opposition to the party machine he has reaped the reward of national unpopularity and defeat. In contrast to this, in his own state, he was the constructive leader. There he has earned and won the most complet political triumphs and the unshake devotion of his fellow citizens.

CABINET STATESMEN

By James L. Sellers
Professor at University of Wisconsin

STATE DEPARTMENT

During the past six years the position of the Secretary of State has been difficult. The unsettled condition of Europe has offered many perplexing problems of international relations. Though the United States was an active and leading participant in the World War, the election of 1920 was won on a platform of non-participation in European affairs. The Secretary of State must protect our vast interest, and at the same time keep up the proposed isolationist policy. For a time the isolation seemed so important that the Department of State refused to reply to communications from the League of Nations.

When the instructions of party platform and the condition of international relations seem to dictate such diverse policies it is difficult for the government to undertake an active foreign policy; hence the career of Secretary Hughes has been less conspicuous than was expected.

Charles Evans Hughes.—Charles Evans Hughes was born at Glens Falls, New York, April 17, 1862. He was educated at Colgate and Brown Universities and later studied law at Columbia. The greater part of his time and energy during the years 1884-1906 were devoted to the practice of law in New York City. He, however, gave some time to academic work. He was special lecturer at Cornell, 1893-95, and held a similar position in the New York Law School, 1893-1900.

During 1905 he acquired political prominence by his services as counsel for certain committees of the New York legislature. In this service Hughes completely won the confidence of the people of the State, and was elected Governor in 1906. Before second term was complete, he was ap pointed to the United States Suprem Court by President Taft. He resigne that position to participate in th campaign of 1916. His defeat for th Presidency gave opportunity to resume law practice in New York City During the succeeding four years h occupied a preëminent position at th head of the American bar.

His appointment as Secretary o State by President Harding in 192 gave an opportunity for unusual service. While the Administration wa loath to call the Washington Disarmament Conference so early in it career, the public seemed anxious fo action and Secretary Hughes took charge of the work. Here he was a his best. He had opportunity to plar the course of action, limit the subjec matter of the conference and generally to direct deliberations. Th United States remained deeply interested in the general question of peace much affected by commercial an financial interests. We would no willingly see the European situatio degenerate into anarchy, and yet th party in power is pledged to kee out of European politics.

In such a situation Secretary Hughes necessarily played a somewhat inactive rôle. Since conditions in Europe did not improve and the reparations problem seemed insoluble he suggested that an investigation to establish Germany's ability to pay would furnish a reasonable and practical answer to the problem. The Dawes Commission and its famous report came from this suggestion, and as a consequence Europe is on its way to economic recovery.

Secretary Hughes is a clear thinker and sees the results of any decision or course of action in terms of its future consequences. He has a capacity for putting his case in an irrefutable manner. His interest and experiences previous to entering the cabinet had dealt primarily with domestic rather than international problems. As an administrator he has shown unusual ability.

Frank Billings Kellogg, like Secretary Hughes, is a native of the Empire State. When only a boy of twelve years his parents moved, in 1865, to Minnesota. There he was admitted to the bar in 1875. After three years' experience as City Attorney of Rochester and five years as County Attorney of Olmstead County, he moved to St. Paul, where he established himself in his profession.

Mr. Kellogg entered into national politics in connection with service as special attorney for the United States in prosecution of the Paper and Standard Oil Trusts. He also investigated the Union Pacific and Southern Pacific merger. In 1916 he was elected to the Senate and after a defeat for reëlection was appointed Ambassador to England. His appointment as Secretary was a surprise to the public, because of his age, limited experience in the diplomatic service, and brief public career. He made a favorable impression upon President Harding during their joint service in the Senate.

The Secretary has aroused considerable hostility by his cancellation of the passport of Shapurgi Saklatvala, the Communistic member of the House of Commons. His invitation to the twelve interested powers to confer in Pekin on the question of extraterritoriality in China is the most significant action of the Department during the year, for it substantiates the belief that President Coolidge has a very geninue and kindly interest in the well-being of China, and that America is not going to sacrifice her interests for a policy of isolation.

DEPARTMENT OF THE TREASURY

Andrew W. Mellon.—The public generally is more directly interested in the Treasury than in any other department. The immense war debt to be refunded and paid, the terms of payment for loans to foreign countries to be fixed and the revision of our taxation system have all involved policies which will affect not only every American but will also affect directly many of the peoples of Europe. Naturally the people are tremendously interested in the person or persons who are responsible for deciding upon such far-reaching policies.

Secretary of the Treasury Andrew W. Mellon was born at Pittsburgh, Pennsylvania, March 24, 1854. His parents were Judge Thomas and Sarah Negley Mellon. Andrew attended the University of Pittsburgh, but very early engaged in business. He founded the town of Donora, Pennsylvania, and established the steel mills there. He is also interested in aluminum production, and served as director and president of Mellon's National Bank at Pittsburgh. This position he resigned to become Secretary of the Treasury March 1, 1921.

When President Harding looked about for a successful business man to undertake the administration of the government's business, he naturally turned to Mellon. He had shown remarkable talent for organization, was accustomed to handling business on a very large scale, and his judgment of business propositions was remarkably sound.

As a cabinet officer Mellon and Mellon's plans have been before the public almost constantly. He has stood for a policy of rigid economy, using arguments less philosophical than those of President Coolidge. He has assigned as reason for economy the need of improving the government's finances. In the first year of his administration he suggested dangers of panic and general business distress if rigid economy were not made the rule of action. For this reason he staunchly opposed soldiers' bonus bills and aid to states or any new items of expenditure.

The Secretary's business foresight and management have been applied to the public debt. The maturities have been either paid or refunded at such a rate as to produce a considerable saving. The annual reduction in the interest in a year was $16,730,000. The short-time debt (maturing within five years), is rapidly being transformed into long-time bonds at lower rates of interest.

His plan for tax reform, urged upon Congress a year ago, began with reduction of the rate of tax on the higher incomes. The Secretary insisted that the rate of taxation was destroying the government revenue and that business was handicapped. The surtax rates were considered almost confiscatory upon the very large incomes. Since large fortunes cannot engage in the ordinary productive pursuits which produce taxable incomes, investors are driven to tax exempt securities. This means the driving of capital from private to public enterprises. The Secretary figured that the revenue derived from taxation of large incomes was practically as great with the surtax rate at 13 per cent. as it was when the rate was increased to 65 per cent.

The opposition at once attacked his proposition as a piece of class legislation to benefit the wealthy at the expense of the poorer citizens, and the Secretary's plan of revision of the income tax was drastically revised by the last Congress.

The Secretary, in December, 1925, was making an appeal for revision, on the ground that the income tax law must be regarded as a failure. Unless it is so revised as to demonstrate its efficacy, to raise revenue without disturbing business it will have to be given up. He is not willing to condemn it as a principle of taxation and is only afraid that the present pernicious rates will condemn it in the eyes of the business world and cause its abandonment as a source of revenue.

The Secretary is interested in a repeal of the federal inheritance tax law, as competing with state inheritance tax laws in almost every state, as difficult and expensive to administer and as placing excessive burdens on many who are ill prepared to bear them. Its operation has proved so inequitable that people the countr over are employing experts to recas their wills in order to escape th tax. The Secretary has made a urgent appeal to repeal this law an to leave the inheritance tax for th states to use as a source of revenue.

Secretary Mellon has been the mos persistent advocate of a constitutiona amendment authorizing the federa government to tax the incomes fro interest upon state and municipa bonds. This, he urges, would driv $13,000,000,000 of capital from hiding and make the wealth of the country bear its share of taxes. While th Secretary has had the very active an emphatic support of the Presiden upon his proposals for revision of th taxing laws, the President has bee silent upon this amendment, whic involves a constitutional differenc between the President and his Secretary. President Coolidge has expressed his desire to revitalize stat and local governments, and coul hardly consent to a blow to depriv them of this exemption.

The Treasury Department is responsible for the rather unpopular dut of enforcing the prohibition amendment and Volstead Act. The Secretary turned over the direction of thi work to one Assistant Secretar General Lincoln C. Andrews. To facilitate the work, treaties extendin the three-mile limit were made wit several foreign powers.

Secretary Mellon has been a ver influential member of the President' counsel, in part because of the importance of his department and i part due to personality and ability On questions of finance the Secretar is very well grounded both in practic and theory.

The Secretaryship is Secretar Mellon's first experience in publi life. He does not talk like a politician. His strength with the publi has been based mainly upon his candid expression of opinion. He i clearly a cautious and conservativ administrator who applies conscientiously the theories he holds. Whil he has not attained the indifferenc to criticism which frequently appear in public officials he seems to enjo the opportunity of public service. Although many would disagree with him as to point of view, it must be admitted that his attitude toward his responsibility is most commendatory.

WAR DEPARTMENT

John W. Weeks.—The Department of War has undergone changes of leadership during the year in both its civil and military branches. John W. Weeks, appointed by Harding, March 4, 1921, became ill in April of this year. His duties then devolved upon Assistant Secretary Dwight Filley Davis who soon succeeded him. General John J. Pershing retired on September 13 as Chief of Staff and was succeeded by Major General John L. Hines. These changes do not presage any change in policy, for the new leaders have helped develop the policies of their predecessors.

Secretary Weeks was born at Lancaster, New Hampshire, April 11, 1860. His youth was spent upon a farm, which he left to take up his training in the Naval Academy at Annapolis and was graduated in 1881. He spent two years in active naval service as a midshipman. He then entered business and in 1888 became a member of the banking firm of Hornblower and Weeks in Boston. In his residence city of Newton he took an active part in community life. In 1900 he was elected Alderman and in 1903, Mayor. He served as Chairman of the State Republican Convention in 1905. He was a member of the 59th and 62nd Congresses, and was Senator from Massachusetts from 1913 to 1919.

Secretary Weeks administered the War Department during the difficult period of post-war retrenchment, with good judgment and administrative tact. He is a man of unusual industry, moderation, and common sense.

Dwight Filley Davis is a native of St. Louis, born July 5, 1879, the son of John Tillman and Maria Filley Davis. At the age of twenty-one he was graduated A.B. from Harvard, and three years later LL.B. from Washington University. He very soon assumed large business responsibilities, and was active on numerous civic boards, commissions and committees. He was a director of the War Finance Corporation, and in 1923 was made Assistant Secretary of War.

Department Policies.—The policy of post-bellum national defense as outlined in the National Defense Act of 1920, limited the Regular Army personnel to 17,000 officers and 280,000 enlisted men. It was intended to serve as first defense in case of war, garrison the important posts and furnish an instructional staff for training civilian components of the nation's defensive organizations. After later reductions the total on active service, June 30, 1925, was 12,462 commissioned officers and 121,762 enlisted men.

Both Secretaries made persistent efforts to keep up the National Guard, increase the Officers' Reserve Corps, and encourage the citizens' Military Training Camps.

The War Department is confronted with a difficult problem of housing. It has inherited the temporary structures built during the war, and is still using many of them as barracks and hospitals. These buildings are not well planned for permanent quarters and still less for hospitalization. The Department most earnestly urges that these temporary barracks be replaced with suitable hospitals.

Secretary Weeks opposed a separate department for the air service. He would not consolidate the air service for the army and the navy. However, he advised that the field of operation of the two services should be fixed by law. He suggested that the army maintain an aerial force twice as great as that of the navy. Aviation may have before it considerable future development. This will make the problem of its permanent relation to the other branches of the service uncertain for some time to come. However, for the present the policy of the department is to make it an auxiliary part of the service.

John Joseph Pershing.—The retirement of General Pershing has taken from the government service one of its most prominent characters. General Pershing has in many ways played the rôle of the ideal citizen. He has served his country well in high places, and still has made no effort to exact political leadership for his military service.

He has an active intellect, sound judgment and well disciplined habits of thought. He is self-reliant and reserved in his habits of conversation—not the man to form close friendships. The General was not good "political timber" and it is to his credit that he recognized this limitation and continued in his own specialty.

DEPARTMENT OF JUSTICE

Harlan F. Stone.—No department has caused recent Presidents so great concern as the Department of Justice. The Department had become the focus of attack and President Coolidge was especially concerned to find the right man to fill it. In the appointment of Harlan F. Stone as successor to Attorney General Daugherty, there could be no question about his legal qualification for the position. For years Dean of Columbia Law School, a member of the New York law firm of Sullivan and Cromwell, his ability and experience were great, yet after nine months as Attorney General he was appointed to the Supreme Court to succeed Justice McKenna. This opportunity was probably by his own choosing, although some press comments were made on a supposed lack of political judgment.

John G. Sargent.—The nomination of Charles Warren as successor to Mr. Stone having failed of confirmation after many prophecies as to the President's next move, the name of John G. Sargent of Vermont was sent into the Senate and confirmed without opposition. The nomination was a distinct surprise to the country for Sargent was a man without a national reputation.

The new Attorney General brings a different element into the cabinet; he is the country town lawyer, little associated with big business. His qualifications rest upon his knowledge of law and his command of the confidence of the President. He is intimate with the Coolidge family.

Sargent has had a sound educational background. After attending the public elementary schools he entered Black River Academy at his own town of Ludlow, Vermont, where the President also had his preparatory schooling. Sargent then entered Tufts College and was graduated A.B. He entered the law office of William Stickney at Ludlow in 1887 and after three years was admitted to the bar. Without being a prominent politician, he knows Vermont politics. He served as Attorney General of Vermont, 1907-1909. "Jumbo" Sargent, as he was known on the Tufts football team, is the largest man in prominent public position. He is a Vermonter who knows how to get the most out of living. He has discovered the good trout streams and enjoys the out-of-doors. In the outskirts of his quiet town he developed a big brick country home, which holds an extensive library.

NAVY DEPARTMENT

Curtis Dwight Wilbur.—The Navy Department is just now in a unique position because of the experiment in limitation of armament which applies only to that branch of the service. The Secretary must share in carrying out the agreement in good faith, and also satisfy the American public that home interests are adequately protected.

The present Secretary is the first of President Coolidge's original Cabinet appointments. He was born at Boonesboro, Iowa, May 10, 1867. He received his early education in the public schools of Boonesboro and of Jamestown, North Dakota. In 1888 he was graduated from the Naval Academy at Annapolis and resigned from the navy at once. After a year of teaching school he entered a law office and began the practice of law at Los Angeles in 1890. From 1899 to 1903 he served as chief deputy to the District Attorney of Los Angeles County. For the next fifteen years he was a state judge. In 1919 he became Associate Justice of the California Supreme Court, and three years later was made its chief justice.

From this position he was taken by President Coolidge to be head of the Navy Department.

Secretary Wilbur's experience has been rather in the field of justice than of administration. However, he comes from a family whose members have demonstrated their talents in various administrative positions.

For many years the Navy can hardly be said to follow an enunciated policy. The new Secretary has tried to formulate such a statement. After advice by the general Naval Board, he accepted and announced a policy, its general purpose and the methods and means by which he proposes to attain those ends.

The selection of Secretary Wilbur has been variously explained. Doubtless his attractive personality aided. Like the President, he is an active Congregationalist. A stronger influence is probably the geographical one; he represents the significant part which the Pacific is to play in our future naval policy. Then too he has lived near the storm center of the naval oil lease controversy without being in any way implicated in it. As a lawyer and judge he should be a very useful adviser to the President in dealing with that and other problems. Politics had something to do with it. Wilbur is a recognized opponent of Senator Hiram Johnson in California.

Policies.—As a fundamental naval principal it was decided that the "Navy of the United States should be maintained in sufficient strength to support its policies and its commerce, and to guard its continental and overseas possessions." In view of the term of treaty resulting from the Washington Conference it was decided "to create, maintain and operate a navy second to none and in conformity with the ratios for capital ships established by the treaty for limitation of naval armaments."

In elaboration of these large purposes several principles were announced: (1) To make the capital ships' ratios the basis for building efforts in all classes of fighting ships. (2) To direct the principal air effort on that part of the air service which is to operate from ships of the fleet. (3) To assemble the active fleet at least once a year for a period of not less than three months. (4) To maintain an active personnel afloat, in conformity to the ratios established for capital ships in the treaty on limitation of armament. (5) To maintain the marine corps personnel at a strength sufficient for current requirements. (6) To develop American interests, especially the American merchant marine. (7) To create, organize and train a naval reserve force. (8) To make the Naval Reserve secure in status and organization. (9) To cultivate close association between active and reserve officers. (10) To give the public all information compatible with military secrecy. (11) To have always in mind that a system of outlying naval and commercial bases suitably distributed, developed, and defended, is one of the most important elements of national strength. It is hoped that the aggressive leadership of the Secretary will tend to clarify the situation.

POST OFFICE DEPARTMENT

Harry Stewart New, as Postmaster-General, is one of the late appointees of President Harding, entering service March 5, 1923, and continuing in President Coolidge's cabinet. He is one of the older cabinet members, who has had a long political career.

Harry Stewart New was born at Indianapolis, December 31, 1858, and educated in the public schools of that city. He began his career as a reporter for the Indianapolis *Journal*. From this position he was advanced to editor and later became publisher. He had unusual business capacities and founded the Bedford Stone and Construction Company, of which he is still President.

It is almost impossible for an Indiana editor to keep out of politics. New was a member of the Indiana State Senate from 1896 to 1900, and of the United States Senate from 1917 to 1923. He served upon the Republican National Committee from 1900 to 1912. As an editor-senator he had much in common with President

Harding. This with the claim of Indiana for a place in the cabinet perhaps accounted for his appointment.

Policies.—In quantity of business and services rendered to the people of the country the Post Office Department is the largest of the federal departments. It is an old department with many traditions well established. The period since the war has been one of economic readjustment, raising many questions of policy for the Post Office Department. Decisions may have great political consequences for the administration, in questions involving the pay of more than 200,000 postal employees. The President vetoed a bill providing increased pay, upon the ground that it made no provision for increasing postal revenue to take care of the additional outlay; the Secretary concurred. The question of what the scale for postal employees should be was thoroughly discussed. The Secretary took the ground it should approximate that of department stores employees, rather than the wages of skilled workmen or earnings of the professional classes.

The new bill resulted in the Act of February 28, 1925, which not only increased the wages and rates but also directs the Postmaster-General to continue to investigate the costs of the various services and to report his findings annually. The Department is satisfied with the present scale of wages, except the lack of increase for night work.

Air Mail.—The air mail postal service is of very recent development, and has great possibilities of expansion. Experiments in air mail began in May, 1918; it is only since July 1, 1924, that there has been a continuous through day-and-night service from New York to San Francisco. The eastern journey is timed to 29 hours and 15 minutes. The west bound schedule calls for the transit of 2,665 miles in 34 hours and 20 minutes because of prevailing westerly winds.

Since the installation of the day-and-night service the Department has created three zones and fixed the rates of letter postage in these zones at eight cents for the first zone, sixteen cents for the second and twenty-four cents for the entire route. This through service involved large additional expenditure for regular and emergency landing fields, for beacon lights to guide the pilots and flood-lights for landing in fields. The Department has set signal lights in 1,900 miles of the crossing, and now has ninety-six air mail planes, sixty-three of which are equipped for night service.

Since July 1, 1925, the Department has established a special night service air mail between New York and Chicago. Planes leave Hadley Field, New York, at 9: 30 P. M., and reach Chicago at 5: 45 A. M. Chicago planes leave Maywood Field at 7: 30 P. M., and arrive in New York at 5: 00 A. M. The Postmaster-General believes that the service has justified itself by the results obtained.

Mail Frauds.—Another policy of the department which is less spectacular but of inestimable importance to the public is the attempt to prevent the use of the mails for fraudulent purposes. By coöperation with the Department of Justice the postal officials have succeeded in destroying some of the largest graft organizations that the country has ever known. The "fraud orders" are a wonderful check on fraudulent organizations. The department has specialized upon oil "crooks" and "quack doctors."

Administration. — Postmaster-General New has recommended that the President be relieved of a large part of the appointive responsibility in his department. He suggests that the law should place the appointment of third class postmasters, of which there are over 11,000, in the hands of the Postmaster-General.

In the economic policy of the department, the question of owning or renting housing accommodations is of prime importance. While it has been the policy of the government to own its own buildings, the appropriations for building and purchase have not kept up with the needs of the service, and the large outlay for rents is increasing.

The Postmaster-General has grasped

the problems of his department and is taking active measures to solve them. His pleasant personality and long business experience are of great value in his present work.

INTERIOR DEPARTMENT

Significance.—The Department of the Interior has come to be one of the centers of domestic affairs. Established in 1809, it included from time to time a variety of specialized services, many of which have gradually been transformed into new departments. It still retains the Land Office, Indian Office, Pension Office, Bureau of Education, Bureau of Reclamation, National Park Service and Alaskan Railroad. From it, within the past year, the President transferred by executive order the Patent Office, Geological Survey and Bureau of Mines, all to the Department of Commerce.

The responsibility for administration of such vast government funds and properties, along with the necessity of developing policies of disposal and future management makes the position of Secretary important. The Harding Administration was unfortunate in its prime selection for this important post. Hubert Work was called to take over the position when it had reached the nadir of unpopularity under Secretary Fall.

Secretary Hubert Work was born at Marion Center, Pennsylvania, July 3, 1860. He received his collegiate and professional education at Pennsylvania State Normal School, the University of Michigan and the University of Pennsylvania, which granted him the M. D. He began medical practice at once (1885) at Greeley, Colorado. In 1896 he moved to Pueblo and founded Woodcroft Hospital. He has been an active member of the Republican party organization. He served as First Assistant Postmaster-General, 1921-1922; and as Postmaster-General the following year. He was transferred to the Department of Interior in 1923.

Bureau of Reclamation.—It is in the Bureau of Reclamation that the greatest problems have recently appeared for the department as is elsewhere described in this volume. Some twenty years ago a number of vast reclamation projects were undertaken; the expenditure to be returned was out of the income from the sale of lands. The revenue from this source has been particularly disappointing. The Secretary explains that the small return is due chiefly to two causes:

(1) Much of the land reclaimed has not been taken up by settlers; (2) Many of the settlers are unable to make payments.

The failure of actual settlers to meet their payments can be explained on many grounds. The practice in the past has been to give blanket relief to those who urgently insisted upon it. The new policy of the department is to require each individual to make separate application and to treat each upon its merits. The abandonment of unprofitable projects will entail a considerable loss, but no alternative appears which will avert the loss. Secretary Work must face these problems. He regards the reclamation work as beyond the power of the states, because many of the projects involve two or several states. Public or private agencies might be employed to promote settlement of the reclaimed areas by the states. The Federal Government would be glad to be relieved of the reclamation construction, but no state is willing to take over this responsibility. The Secretary has held up a number of authorized developments until there is further evidence of their desirability.

Indian Service.—In the Indian service the Department has also followed a policy of decentralization. All the tribal Indians are now becoming citizens of the states, which have, or should have agencies and facilities for performing all the services hitherto undertaken by agents of the Federal Government. For instance, the Secretary would make the states completely responsible for Indian education, but with financial assistance from the Federal Treasury.

Alaska Railroad.—The Department has charge of the government-owned Alaska Railroad, which is a losing enterprise. Critics have suggested that it should be salvaged and a motor road maintained in its stead. The Secretary is aware that Alaskan business must be small for some time to come. A motor road would also be costly to maintain, and would give a less satisfactory service. He regards the railroad as a necessity which will give the services required, at as small a cost as they can be obtained.

DEPARTMENT OF COMMERCE

Growth.—The Department of Commerce has expanded more rapidly within the past year than any other of the Federal departments, partly through redistribution and reorganization of executive functions. Several important services, including the Patent Office, Geological Survey and the Bureau of Mines, have been transferred from the Department of the Interior to the Department of Commerce.

Likewise the former services have been extended. The Bureau of Foreign and Domestic Commerce has greatly increased its functions and the Bureau of Standards has been very active.

Secretary Hoover stands in the front rank of the men in public service today. No other administrator under the President has so much of the confidence of the public. His character, intellect, achievements, speeches, and public conduct combine to establish that faith in him.

Secretary Herbert Clark Hoover was born at West Branch, Iowa, August 10, 1874. His parents were Jesse C. and Hulda Minthorn Hoover. Among his forbears are Huguenots as well as Dutch immigrants. His immediate parents were Quakers. His father, a blacksmith, died when he was six, and he was brought up by his mother, a woman of active intellect and spiritual devotion. When Herbert was 10 years of age she also died, and he was cared for by Quaker relatives, among them an uncle who was an Indian agent. At the age of sixteen, having reached the Pacific Coast, he began to provide for himself. At Salem, Oregon, a successful miner aroused his interest in science and led to his later study of geology.

Professional Standing.—He was in the first class of the new Leland Stanford Junior University. Before and after graduation he was employed by mining interests to survey and examine mine prospects in the mountain states and Mexico. He also was employed as a mining expert in Western Australia, and in China, South Africa and Russia.

World War Service.—Hoover's part in the World War is well known to people the world over. As a result of his great service he received honorary degrees from twenty-six universities and colleges. When President Harding offered him the Secretaryship of Commerce, there was a clear understanding that he was to have opportunities to reorganize the work and reform many of the practices of the Department. It was understood that the conduct of his Department would be free from political influence.

Policies.—Secretary Hoover brought to his Department and the government at large a new vision of the government's opportunities. He believed in transforming the department into an agency of worthwhile practical services, such as exceed their cost in actual business balances. He has an eye for large scale economies and distribution advantages, and is ingenious in devising means to accomplish his purpose. A very important step was the reorganization of the Bureau of Foreign and Domestic Commerce. As it had been previously operated to collect commercial information, it was more valuable as a historical record than as an agency for business. The information to be of value to business men had to be supplied more promptly.

Secretary Hoover has tried to gather information that will forecast business demands. He has utilized experts in special lines to supply the information and he makes such information available to American business men, in time to enable them to adjust their business to market conditions in every part of the world. As a result the number of demands for services from the Department of Commerce by exporters, merchants, bankers, etc., have increased tenfold since 1921.

Interest in Production.—The Secretary is interested in improving domestic production, as the factor which will determine our ability to compete with other producers. Through the Patent Office it can effectively influence production by protecting inventors and fostering inventions and through the Bureau of Standardization wastes in production may be eliminated. Within this Bureau Secretary Hoover has organized a Division of Simplified Practice, to reduce the diversity in styles and patterns of a given manufactured commodity. For example, the number of kinds of milk bottles was simplified from 49 to 9.

To get industries to adopt these simplified practices of production and abandon their old more complicated and diversified practice has been a real problem. The Bureau of Standards has called numerous conferences of producers and industrial managers, in which the advantages of simplified practice in production are set forth. The great economies of marketing are clearly evident.

Hoover is fully aware that commerce is influenced by a great diversity of factors, and realizes that it is his duty, not merely to tabulate the statistical growth of business transactions, but to produce sound business prosperity and to improve the standard of living for the whole nation. As an economic expert without a peer, he is called upon to offer opinions and solutions for many and sundry national ills.

Labor.—He has been prominent in the Labor Conferences held during the past five years. He sees the labor problem as no mere adjustment of hours and wages but a problem of stimulating an interest in creative production. The worker must find stimulus and joy in his work beyond the mere purpose of drawing his pay. The managers and employers must establish a relation that gives confidence and a continuing bond of interest to the worker if they have any expectation of stabilizing labor relations.

Transportation.—Another factor in commerce is transportation. The railroads must still be regarded as our chief agency, but subject to a variety of improvements. Patrons of the roads should systematically plan to distribute their shipping so as to avoid congestion. We need further consolidation of railroad management, to secure additional economies. There is crying need for consolidation of freight terminals. The railroad rates are in need of readjustment, and railroad finances will have to be strengthened.

Theory of Government.—After observing these achievements and recommendations one is naturally interested in his theory of government. How far would he utilize government for purposes of production and control of economic functions? He holds that the failure of the Russian revolution is due to the attempt to substitute altruism and patriotism and eliminate the stimulus of self interest. He regards bureaucracy as deadening to human initiative and destructive of social and economic progress.

Growth of Reputation.—What explains Hoover's overshadowing reputation and his phenomenal success as a public servant? Presumably his clear and complete understanding of all the details in every situation. He has a remarkable ingenuity for devising means to reach any of his clearly conceived objectives. He possesses unbounded faith in the good sense and intentions of his fellow men. For this reason he invariably favors voluntary rather than regulatory methods.

Another factor which has made him superb as a national adviser, especially upon economic topics, is his status as a scientist, a statistician, and an engineer. He has an appetite for statistics and curves which aids him to sense a movement or a trend in its inception. He acts upon facts. He acts with assurance. Such is what the "engineer - economist - organizer" can do in a government position.

DEPARTMENT OF AGRICULTURE

Vacancy.—The death of Secretary Wallace left a vacancy at the head of the Agricultural Department, November 4, 1924. The position was temporarily filled by Assistant Secretary Howard N. Gore, Governor-elect of West Virginia, but he continued to serve the Department until inauguration day.

William M. Jardine.—In the meantime President Coolidge announced as his successor William M. Jardine of Kansas, the youngest member of the cabinet. He was born in Oneida County, Idaho, January 16, 1879. He spent his early years on ranches in Idaho and Montana. He was graduated from the Agricultural College of Utah where he specialized in Agronomy. He continued in academic work in Utah and later in the Kansas Agricultural College. He served as dean of the latter institution from 1913 to 1918; and since that time has been its President.

Qualifications.—Secretary Jardine's experience has brought him in contact with the most acute agricultural problems of the country. Researches in dry farming gave him intimate knowledge of the conditions and difficulties on the agricultural frontier. He is no mere theorist on the question of agricultural expansion and he understands the methods that must be employed if it is to be carried on successfully. Coming from a state that has suffered most severely from agricultural depression, he knows what are the needs of the farmers in the grain belt.

It would have been difficult to find a man better qualified for the position of Secretary of Agriculture. Jardine combines scientific knowledge, administrative experience and ability, political contacts and the confidence of a depressed section.

Policies.—The general policies of the Department as expressed in speeches of the President and the Secretary's utterances are about as follows:

(1) The general agricultural depression from which we are just recovering is the chief problem. Additional measures for alleviation of the depression and for prevention of future fluctuations are to be employed. National legislation will be needed to attain some of these results.

(2) The Secretary regards freight rates upon agricultural products as one of the causes of depression. He points out that freight rates reached a maximum at the time that agricultural products were bringing their minimum price. He proposes that rates on agricultural products should bear some relation to their market value.

(3) The coöperative marketing societies are to be encouraged because they may be utilized as agents for stabilizing agricultural conditions. It is not the purpose of the Department to sponsor or manage or even closely regulate these societies but to offer them protection and the benefit of tried advice. The responsibilities which these societies assume, require their members to master an amount of economic knowledge which will stabilize production, and in turn will steady agricultural prices and conditions.

(4) The Department is especially active in collecting and disseminating information. By a system of crop reporting the department has attempted to forecast the size of the various crops to be planted in sufficient time before seeding to enable farmers to change their acreage. This service is being extended to live stock breeding. It thus enables farmers to follow the reports and adjust their production in view of the prospective supply at the time of marketing. Hence the Department has arranged to have the colleges broadcast its weather, crop and marketing reports.

(5) The Department is also interested in scientific agriculture. Recent legislation has increased the money available for use of experiment stations. The findings of investigators are published in the Agricultural bulletins, and should do much to reduce costs of agricultural production.

(6) Since agricultural prosperity depends chiefly upon market conditions it is the policy of the department to coöperate closely with the Department of Commerce. The efforts of these able secretaries should do much to stabilize production.

DEPARTMENT OF LABOR

Secretary James John Davis.—If government is to assist in solving our industrial problems the Department of Labor must be assigned stupendous responsibilities. The nation is becoming more and more industrial in character as each year brings its crises in industrial relations. The public is an interested party and expects its interests to be guarded by the government. It looks to the Secretary of Labor for suggestion, especially in labor and immigration problems.

The present Secretary of Labor is the only cabinet member born outside of the United States. He also has the experience of rising to that important position with very little formal education. He is a member of a labor union and at the same time has built up a considerable fortune. James John Davis was born at Tredegar, Wales, October 27, 1873. His family migrated to Sharon, Pennsylvania, in 1881 where his father found employment as a puddler in the iron works. The family had few worldly goods and any extra earnings by the children were a welcome addition to the family income.

Trade.—Davis was a likely lad who made acquaintances easily. He drove the hotel keeper's cows to pasture, ran errands for numerous neighbors and business acquaintances, carried telegrams and shined shoes. At eighteen he began regular work as a puddler in the iron works. In 1883 he moved to Elwood, Indiana, and began work in the tin plate mill. He was a member of the Amalgamated Association of Steel and Tin Workers of America, and served as Secretary of his local order.

Public Service.—At twenty-five he was elected City Clerk of Elwood and four years later was chosen County Recorder of Madison County. His first experience in political leadership came in a controversy over a strike in 1896. Davis saw the danger of the strike to the workers and voiced his doubts in such a manner as to defeat the strike agitators. In his first political campaign he carried a large slate and demonstrated before his audiences his ability in mathematics and orthography. He was thus especially successful in refuting charges of illiteracy and allaying suspicion aroused by his foreign birth.

As recorder, Mr. Davis saved money, and began to assist various friends in all kinds of small ventures. He now turned his full attention to this type of business and founded the American Bond and Mortgage Company of Pittsburgh.

Mooseheart.—In 1906 he became a member of the Loyal Order of Moose, an organization including large numbers of working men. Davis had long felt the need for better protecting the widows and orphans of workers. He felt that this was just the organization to assume that function. He was made Director General of the Order and came to realize that the way to keep the Order interested was to require from it a service to humanity. Hence he persuaded his colleagues to join in founding a home for the dependent children of deceased members of the Order. This, in many cases, has included also the widows, so as not to separate the families. To this end was established Mooseheart—"The School that Trains for Life"—near Chicago. The success of this dream of the Director General has made it possible to put into practice a new system of education; besides the usual academic high school training for such of the students as show the necessary capacity, every boy and girl gets a training in some kind of skilled trade or pursuit in which graduates can make their own living. Davis has been specially concerned in thus building up a practical education for both boys and girls such as might be introduced into any city that is willing to make the necessary appropriations.

Labor.—His success in public life is due first of all to his inheritance of a strong, physical constitution developed by rigorous labor. All his life he has shown an unusual capacity for work: this makes possible a very active life and the habit of investigating things at first hand, delegating as little as possible to subordinates. His mind seizes the essentials and he has developed a high power in public speaking.

As Secretary of Labor, Davis was at first by some people considered an enemy of organized labor. On that question his platform appears to be that he believes every man should have the right to work; that in some situations Labor Organizations have earned the right to control conditions and terms of contract, that most labor troubles can be and ought to be avoided. He has made it his principle to prevent strikes rather than to settle them.

Immigration.—As a part of his duties the Secretary of Labor is in charge of Immigration. Secretary Davis had urged a system of examinations of the immigrants abroad which would enable us to select a better quality of immigrants. He proposes that deficiencies in national quotas in any year be carried forward to increase the quota of that country in future years, depending on economic conditions and subject to the secretary's official recommendation. The statistical work of the department has been much improved under his administration and has gone far toward establishing a science of labor statistics which will aid in settling future industrial problems.

SELECT REFERENCES ON STATESMEN IN OFFICE

OFFICIAL

U. S. Congressional Directory, contains brief personal history of each official.

NEWSPAPERS

New York Times, World, Herald, Sun, Christian Science Monitor, Washington Post, Boston Herald, Chicago Tribune, Kansas City Star.—Numerous other good daily newspapers. All carry speeches and news of indispensable value in this study.

PERIODICALS

Current History, contains the best digest of current history.

Literary Digest, has a section devoted to personalities.

New Republic, prints Washington notes.

Review of Reviews, carries photographs and special comments upon personalities.

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Davis, James J.—*The Iron Puddler. My Life in the Iron Mills and What Came of It.* Indianapolis, 1922.
U. S. Secretary of Labor, *Annual Report.* Wash., 1925.
Monthly Labor Review, Year 1925.
Mooseheart Magazine.

THE FEDERAL ADMINISTRATION

(Principal Officers Classified)

By Arthur N. Holcombe
Professor at Harvard University

THE PRESIDENT AND VICE-PRESIDENT

President.—Calvin Coolidge, of Massachusetts (Republican). Sworn into office as President of the United States, August 3, 1923, in succession to the late President Harding. Reelected to the presidency, November 4, 1924. Inaugurated for his first elective term, March 4, 1925.

Vice-President. — Charles Gates Dawes, of Illinois (Republican), was inaugurated Vice-President of the United States on March 4, 1925.

Secretary to the President.—Everett Sanders of Indiana, succeeded C. Bascom Slemp, resigned, as secretary to the President on March 4, 1924. Mr. Sanders was formerly a representative in Congress from the Fifth Indiana District.

Vacancy.—By Act of Congress, in the case of vacancy in office of President through the death or removal of both President and Vice-President, the Cabinet officers succeed to the presidency in the order indicated in the following summary of the executive departments.

CABINET CHANGES

Several changes in the Cabinet occurred during the year. The most important, politically speaking, was in the Department of Justice. Jan. 5, Harlan F. Stone resigned in order to accept an appointment to the Supreme Court in place of Justice McKenna, who had retired. The President nominated Charles B. Warren of Michigan, former Ambassador to Japan and to Mexico and chairman of the resolutions committee in the last Republican National Convention, to be Justice Stone's successor. Foreseeing strong opposition to this appointment from the then existing Senate, the nomination was not pressed until the special session of the new Senate, which convened March 4. Confirmation was opposed largely on account of Mr. Warren's alleged connections with the "beet-sugar trust." On March 10 the nomination failed of confirmation, by a tie vote, 40 to 40, Vice-President Dawes being absent; and then after reconsideration was defeated 39 to 41. President Coolidge resubmitted

Mr. Warren's name, but the appointment was finally rejected, March 16, by a decisive majority; and the President thereupon nominated an old Vermont friend, John Garibaldi Sargent. This appointment was promptly confirmed.

March 4, Frank B. Kellogg, formerly Ambassador to Great Britain and Senator from Minnesota, succeeded Charles E. Hughes as Secretary of State; and William M. Jardine, formerly President of the Kansas State Agricultural College, became Secretary of Agriculture in succession to Howard M. Gore, Governor-elect of West Virginia, who had been acting-Secretary since the death of Secretary Wallace. October 13, Dwight F. Davis of St. Louis, Assistant-Secretary of War, and acting Secretary during the illness of Secretary Weeks, was promoted to the Secretaryship on the latter's resignation.

DEPARTMENT OF STATE

Secretary of State.—Frank Billings Kellogg.

Undersecretary of State.—Joseph C. Grew.

Assistant Secretaries of State.—Leland Harrison. — J. Butler Wright.—Wilbur J. Carr.—Robert E. Olds.

Foreign Service Personnel Board.—Joseph C. Grew, Undersecretary of State.—Butler Wright, Assistant Secretary of State.—Wilbur J. Carr, Assistant Secretary of State.—Hugh R. Wilson, Chairman of the Executive Committee.—Ralph J. Totten, member of the Executive Committee.—William Dawson, member of the Executive Committee.

Solicitor.—Green H. Hackworth.

Economic Adviser. — Arthur N. Young.

Chief Clerk.—E. J. Ayers.

Secretary to the Secretary of State.—William H. Beck.

Chiefs of Divisions of—
- Far Eastern Affairs.—Nelson T. Johnson.
- Latin-American Affairs. — Francis White.
- Western European Affairs.—William R. Castle.
- Near Eastern Affairs.—Allen W. Dulles.
- Mexican Affairs.—Franklin Mott Gunther.
- Eastern European Affairs.—Robert F. Kelley.
- Passport Control.—J. Klahr Huddle.
- Publications.—Tyler Dennett.
- Current Information. — Hugh R. Wilson.
- Foreign Service Administration.—Herbert C. Hengstler.

Chiefs of Bureaus of—
- Accounts and disbursing clerk.—William McNeir.
- Indexes and Archives.—David A. Salmon.

Chiefs of Offices of—
- Coördination and Review.—Margaret M. Hanna.
- Visa.—Coert du Bois.
- Executive Committee of Foreign Service Personnel Board. — Worthington E. Stewart.

Editor of Laws of Congress.—Henry L. Bryan.

Officer in Charge of Ceremonials.—Charles L. Cooke.

Translator.—John S. Martin.

TREASURY DEPARTMENT

Secretary of the Treasury.—Andrew W. Mellon.

Charged with the management of the national finances. He prepares plans for improvement of the revenue and support of the public credit; superintends collection of the revenue; grants warrants for all moneys paid from and into the Treasury; controls construction of public buildings; coinage and printing of money, and the administration of the Coast Guard and the Public Health Service; *ex officio* chairman of the Federal Reserve Board and of the Federal Farm Loan Board.

The Undersecretary (in general charge).—Garrard B. Winston.
- Assistants.—W. B. Thompson and Charles R. Schoeneman.

Assistant Secretary (in charge of Fiscal Offices). — Charles S. Dewey.

Assistants.—(Same as for Undersecretary, above.)

Assistant Secretary (in charge of internal revenue and miscellaneous).—McKenzie Moss.

Assistants.—W. B. Kilpatrick and H. R. Sheppard.

Assistant Secretary in Charge of Customs, Coast Guard and Prohibition.—Lincoln C. Andrews.

Assistant.—Frank Dow.

Commissioner of the Public Debt.—William S. Broughton.

Deputy Commissioner of the Public Debt.—S. R. Jacobs.

Commissioner of Accounts and Deposits.—Robert G. Hand.

Deputy Commissioner of Accounts and Deposits.—D. W. Bell.

Chief Clerk.—F. A. Birgfeld.

Private Secretary to the Secretary of the Treasury.—John Kieley.

Chiefs of Divisions of—
- Appointments.—James E. Harper.
- Bookkeeping and Warrants.—M. J. O'Reilly.
- Customs.—Ernest W. Camp.
- Deposits.—E. D. Batchelder.
- Loans and Currency.—C. N. McGroarty.
- Mail and Files.—L. C. Martin.
- Paper Custody.—F. G. Collins.
- Printing.—F. F. Weston.
- Public Debt Accounts and Audit.—M. R. Loafman.
- Secret Service.—W. H. Moran.
- Special Agency Service, Customs.—Nathaniel G. Van Doren.
- Disbursing Clerk.—J. L. Summers.
- Government Actuary.—Joseph S. McCoy.

Comptroller of the Currency.—Joseph W. McIntosh.

Has supervision of the national banks, their examination and reports; the preparation and issue of national bank circulation; the redemption and destruction of national bank notes. *Ex officio* a member of the Federal Reserve Board; and in this capacity draws a salary of $7,000 in addition to the salary of $5,000 attached to the office proper.

Treasurer of the United States.—Frank White.

Charged with the receipt and disbursement of all public moneys deposited in the Treasury and subtreasuries and in national bank depositories.

National Bank Redemption Agency. — Superintendent, George O. Barnes.

Director of Bureau of the Budget.—Director, Gen. Herbert M. Lord.—Chief Coördinator, Brig. Gen. H. C. Smither.

Commissioner of Internal Revenue. D. H. Blair.

General supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Mint.—Robert J. Grant.

Has general supervision of the mints and assay offices.

Register of the Treasury.—Harley V. Speelman.

Federal Farm Loan Bureau.—Chairman (*ex officio*).—Andrew W. Mellon, Secretary of the Treasury.

Farm Loan Commissioner and Executive Officer.—Robert A. Cooper.

Bureau of Engraving and Printing.—Director, Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Bureau of Public Health Service.—Surgeon General, Hugh S. Cumming.

Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious diseases; supervision of the quarantine service of the United States, and of the marine hospitals.

The Coast Guard. — Commandant, Rear Admiral Frederick C. Bullard.

Supervising Architect's Office.—Acting Supervising Architect. — James A. Wetmore.

Bureau of Supply.—Director, Dan C. Vaughan.

Customhouse.—Deputy Collector in Charge, Leo A. Gertman.

DEPARTMENT OF WAR

Secretary of War.—Dwight Filley Davis.

Assistant Secretary of War.—Hanford MacNider.

Assistant and Chief Clerk.—John C. Scofield.

Private Secretary to Secretary of War.—John W. Martyn.

Assistant Chief Clerk.—John B. Randolph.

Disbursing Clerk.—Sydney E. Smith.

Principal Clerk.—Frank M. Hoadley.

War Department General Staff.—Chief of Staff, Maj. Gen. John L. Hines.

Office of the Chief of Cavalry.—Chief, Maj. Gen. Malin Craig.

Office of the Chief of Field Artillery.—Chief, Maj. Gen. William J. Snow.

Office of the Chief of Coast Artillery.—Chief, Maj. Gen. Frank W. Coe.

Office of the Chief of Infantry.—Chief, Chaplain John T. Axton.

Office of the Adjutant General.—The Adjutant General, Maj. Gen. Robert C. Davis.

Office of the Inspector General.—Inspector General, Maj. Gen. Eli A. Helmick.

Office of the Judge Advocate General.—Judge Advocate General, Maj. Gen. J. A. Hull.

Office of the Quartermaster General.—Quartermaster General, Maj. Gen. W. H. Hart.

Office of Chief of Finance.—Chief of Finance, Brig. Gen. Kenzie W. Walker.

Office of the Surgeon General.—Surgeon General, Maj. Gen. M. W. Ireland.

Office of the Chief of Engineers.—Chief, Maj. Gen. Harry Taylor.

Office of the Chief of Ordnance.—Chief, Maj. Gen. Clarence C. Williams.

Office of the Chief Signal Officer.—Chief, Maj. Gen. Charles McK. Saltzman.

Office of the Chief of the Air Service.—Chief of the Air Service, Maj. Gen. Mason M. Patrick.

Bureau of Insular Affairs.—Chief of Bureau, Maj. Gen. Frank McIntyre.

Philippine Government.—Governor General, Leonard Wood.

Porto Rico Government.—Governor, Horace M. Towner.

Militia Bureau.—Chief, Maj. Gen. Creed C. Hammond.

Office of the Chief of the Chemical Warfare Service.—Chief, Maj. Gen. Amos A. Fries.

The Army War College.—Commandant, Maj. Gen. Hanson E. Ely.

DEPARTMENT OF JUSTICE

Attorney General.—John Garibaldi Sargent.

Represents the United States in all legal matters.

Solicitor General.—William D. Mitchell.

Special Assistant to the Attorney General.—Paul A. Chase.

Assistant to the Attorney General.—William J. Donovan.

Assistant Attorneys General.—John Marshall, Mabel Walker Willebrandt, Herman J. Galloway, Ira Lloyd Letts, Bertice M. Parmenter, and Oscar R. Luhring.

Assistant Attorney General, Customs Division.—Charles D. Lawrence.

Director Bureau of Investigation.—J. Edgar Hoover.

Private Secretary and Assistant to the Attorney General.—Ugo J. A. Carusi.

Chief Clerk and Administrative Assistant.—James W. Baldwin.

Assistant Chief Clerk.—Julia B. Rishel.

Appointment Clerk.—Charles B. Sornborger.

Chief, Division of Mails and Files.—Arthur Robb.

Chief, Division of Supplies and Printing.—John B. Reynolds.

Librarian.—George Kearney.

Superintendent of Prisons.—Luther C. White.

Attorney in Charge of Pardons.—James A. Finsh.

Attorney in Charge of Titles.—Horace H. Smith.

General Agent.—John D. Harris.

Chief of Division of Accounts.—H. J. McClure.

Disbursing Clerk.—Don C. Fees.

POST OFFICE DEPARTMENT

Postmaster General.—Harry Stewart New.

Private Secretary to Postmaster General.—Alice Memmenhoff.

Chief Clerk.—Thomas J. Howell.

Assistant Chief Clerks.—Charles E. Warren and Alice B. Sanger.

Appointment Clerk.—Audus T. Davis.

Disbursing Clerk.—Louis A. Delano.

Executive Assistant to the Postmaster General.—Joseph Stewart.

Office of Solicitor: Solicitor.—Horace J. Donnelly. Assistant Solicitor.—Walter E. Kelly. Assistant Attorneys.—Calvin W. Hassell, William L. Rhoads, Harold F. Jones, Stewart E. Blassingham, Abraham B. Keefer, and John J. Gregory.

Division of Purchasing Agent: Purchasing Agent.—Thomas L. Degnan. Chief Clerk.—Alfred H. Keim.

Division of Post Office Inspectors: Chief Inspector.—Rush D. Simmons. Chief Clerk.—Daniel S. Shook.

First Assistant Postmaster General.—John H. Bartlett.

Second Assistant Postmaster General.—Warren Irving Glover.

Third Assistant Postmaster General.—Robert S. Regar.

Fourth Assistant Postmaster General.—H. H. Billany.

DEPARTMENT OF THE NAVY

Secretary of the Navy.—Curtis Dwight Wilbur.

Assistant Secretary.—Theodore Douglas Robinson.

Chief Clerk.—F. S. Curtis.

Private Secretary to the Secretary.—John B. May.

Confidential Clerk to the Secretary.—Raymond Eberly.

Clerk to Secretary.—Bernard A. McGinn.

Private Secretary to the Assistant Secretary of the Navy.—Verne Simkins.

Chief of Appointment Division.—William D. Berman.

Estimate Clerk.—Roy H. Moses.

Disbursing Clerk.—A. H. Hoiland.

Chief of Division of Records.—Charles T. Ogle.

Office of Naval Operations.—Chief of Naval Operations, Admiral Edward W. Eberle.

Bureau of Navigation.—Chief, Rear Admiral William R. Shoemaker.

Bureau of Yards and Docks.—Chief, Rear Admiral L. E. Gregory.

Bureau of Ordnance.—Chief, Rear Admiral Claude C. Bloch.

Bureau of Construction and Repair.—Chief, Rear Admiral J. D. Beuret.

Bureau of Engineering.—Chief, Engineer in Chief, Rear Admiral John Halligan, Jr.

Bureau of Supplies and Accounts.—Paymaster General, Rear Admiral Charles Morris.

Bureau of Medicine and Surgery.—Chief, Rear Admiral E. R. Stitt.

Bureau of Aëronautics.—Chief, Rear Admiral William A. Moffett.

Office of Judge Advocate General of the Navy.—Judge Advocate General, Rear Admiral Edward H. Campbell.

Naval Consulting Board.—President, Thomas A. Edison.

Compensation Board.—Senior Member, Rear Admiral W. L. Capps.

General Board.—Admiral E. W. Eberle, Maj. Gen. John A. Lejeune, Rear Admirals Hilary P. Jones, A. T. Long, H. A. Wiley, W. V. Pratt, W. W. Phelps, C. B. McVay, Lieut. Col. L. C. Lucas, Lieut. Commander E. M. Williams.

Board of Medical Examiners.—President, Rear Admiral A. M. D. McCormick.

Naval Examining Board.—President, Rear Admiral Sumner E. W. Kittelle.

Naval Retiring Board.—President, Rear Admiral A. M. D. McCormick.

Naval Dispensary.—Rear Admiral Cary T. Grayson.

Navy Yard and Station, Washington, D. C.—Commandant and Superintendent Naval Gun Factory, Rear Admiral B. F. Hutchison.

Naval Medical School.—Capt. James C. Pryor.

Naval Hospital.—Capt. Charles H. T. Lowndes.

Attendance on Officers.—Lieut. Commander John J. O'Malley.

Board for Examination of Medical Officers.—President, Capt. James C. Pryor.

Board for Examination of Dental Officers.—Capt. James C. Pryor.

Marine Corps.—Commandant, Maj. Gen. John A. Lejeune. Adjutant and Inspector, Brig. Gen. Rufus H. Lane.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Hubert Work.

Charged with pensions, public lands, Indian affairs, geological surveys, reclamation of arid lands, and mines.

First Assistant Secretary.—Edward C. Finney.

Assistant Secretary.—John H. Edwards.

Administrative Assistant.—Ebert K. Burlew.

Chief Inspector.—Joseph F. Gartland.

Executive Assistants.—William J. Donald, John H. McNeely.

Chief Clerk.—W. Bertrand Acker.

Assistant to the Solicitor.—Orlin H. Graves.

Board of Appeals.—George B. Gardner, William B. Newman, Alvah W. Patterson.

Superintendent of Classification.—John Harvey.

Chiefs of Divisions of—
- Disbursing.—J. B. Callahan.
- Appointments, Mails and Files.—George E. Scott.
- Publications.—Charles F. Glass.
- Supplies.—Amos W. Hawk.
- Traffic.—Charles E. Harris.
- Medical Officer.—Charles E. O'Connor.

General Land Office.—Commissioner, William Spry.

Office of Indian Affairs.—Commissioner, Charles H. Burke.

Bureau of Pensions.—Commissioner, Winfield Scott.

Bureau of Education.—Commissioner, John T. Tigert.

Geological Survey.—Director, George Otis Smith.

Bureau of Reclamation.—Commissioner, Edward Mead.

National Park Service.—Director, Stephen T. Mather.

Board of Indian Commissioners.—Chairman, George Vaux, Jr.

St. Elizabeth's Hospital.—Superintendent, William A. White, M.D.

Freedmen's Hospital.—Surgeon in Chief, William A. Warfield, M.D.

Howard University—
- Patron *ex officio.*—Hubert Work, M.D., Secretary of the Interior.
- President of Board of Trustees.—Charles R. Brown.
- President.—J. Stanley Durkee.

Columbia Institution for the Deaf
- Patron *ex officio.*—Calvin Coolidge, President of the United States.
- President.—Percival Hall.

Southern Appalachian National Park Commission.—Chairman, Henry W. Temple.

Territorial Officials.—
- Governor of Alaska.—George A. Parks.
- Governor of Hawaii.—Wallace R. Farrington.

The Alaska Railroad.—General Manager, Noel W. Smith.

War Minerals Relief.—Commissioner, John Briar.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—William Marion Jardine.

Exercises supervision over agricultural industry, experiment stations, quarantine stations for imported cattle, inspection of foods and drugs, national forest reserves, and interstate game laws.

Assistant Secretary.—R. W. Dunlap.

Assistant to the Secretary.—F. M. Russell.

Administrative Assistant.—H. M. Bain.

Director of Regulatory Work.—Walter G. Campbell.

Director of Extension Work.—C. W. Warburton.

Director of Information.—Nelson Antrim Crawford.

Director of Personnel and Business Administration.—W. W. Stockberger.

Solicitor.—R. W. Williams.

Office of Personnel and Business Administration.—Director, W. W. Stockberger.

Office of Information.—Director, Nelson Antrim Crawford.

Agricultural Extension Service.—Director, C. W. Warburton.

Office of Experiment Stations.—Chief, E. W. Allen.

Weather Bureau.—Chief, Charles F. Marvin.

Bureau of Animal Industry.—Chief, John R. Mohler.

Bureau of Dairying.—Chief, Carl W. Larson.

Bureau of Plant Industry.—Pathologist and physiologist and chief, William A. Taylor.

Forest Service.—Forester and Chief, W. B. Greeley.

Bureau of Chemistry.—Chief, Charles A. Browne.

Bureau of Soils.—Soil Physicist and Chief, Milton Whitney.

Bureau of Entomology.—Entomologist and Chief, L. O. Howard.

Bureau of Biological Survey.—Biologist and Chief, E. W. Nelson.

Bureau of Public Roads.—Chief, Thomas H. MacDonald.

Bureau of Agricultural Economics.—Chief, Thomas P. Cooper.

Bureau of Home Economics.—Chief, Louise Stanley.

Fixed Nitrogen Research Laboratory.—Director, F. G. Cottrell.

Library.—Librarian, Claribel R. Barnett.

Packers and Stockyards Administration.—Chief, John T. Caine.

Grain Futures Administration.—Chief, J. W. T. Duvel.

Insecticide and Fungicide Board.—Chairman, J. K. Haywood.

Federal Horticultural Board.—Chairman, C. L. Marlatt.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Herbert Hoover.—Charged with promoting commerce, mining, manufacturing, shipping, fisheries, patents, and transportation.

Assistant Secretary. — J. Walter Drake.

Solicitor.—Stephen B. Davis.

Chief Clerk and Superintendent.—E. W. Libbey.

Disbursing Clerk.—Charles E. Molster.

Director of Purchases and Sales.—Walter S. Erwin.

Traffic Manager.—Noble N. Potts.

Private Secretary to the Assistant Secretary. — Kenneth MacPherson.

Chiefs of Divisions of—

Appointments.—Clifford Hastings.
Publications.—Thomas F. McKeon.
Supplies.—R. B. Bronson.

Bureau of the Census.—Director, William M. Stewart.

Bureau of Foreign and Domestic Commerce. — Director, Julius Klein.

Bureau of Standards. — Director, George K. Burgess.

Bureau of Fisheries.—Commissioner, Henry O'Malley.

Bureau of Lighthouses.—Commissioner, George R. Putnam.

Coast and Geodetic Survey.—Director, E. Lester Jones.

Bureau of Navigation. — Commissioner, D. B. Carson.

Steamboat Inspection Service.—Supervising Inspector General, George Uhler.

Patent Office.—Commissioner, Thomas E. Robertson.

Bureau of Mines.—Director, Scott Turner.

DEPARTMENT OF LABOR

Secretary of Labor.—James John Davis.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States.

Private Secretary to the Secretary of Labor.—Florence B. Wells.

Office of the Assistant Secretary—

Assistant Secretary.—Robe Carl White.

Private Secretary to the Assistant Secretary.—Anna V. Moynihan.

Second Assistant Secretary.—W. W. Husband.

Private Secretary to the Second Assistant Secretary.—Ralph H. Horner.

Solicitor.—Theodore G. Risley.

Office of the Chief Clerk—

Chief Clerk.—Samuel Gompers.
Disbursing Clerk.—George W. Love.
Chief, Division of Publications and Supplies.—Shelby Smith.

Appointment Clerk.—Robert C. Starr.

Librarian.—Laura A. Thompson.

Bureau of Labor Statistics.—Commissioner of Labor Statistics, Ethelbert Stewart.

Bureau of Immigration.—Commissioner General of Immigration, Harry E. Hull.

Children's Bureau.—Chief, Grace Abbott.

Bureau of Naturalization.—Commissioner of Naturalization, Raymond F. Crist.

Women's Bureau.—Director, Mary Anderson.

United States Employment Service.—Director General, Francis I. Jones.

Bureau of Industrial Housing and Transportation.—Director, Robert Watson.

MISCELLANEOUS EXECUTIVE SERVICES

Smithsonian Institution.—Established 1846, under the terms of James Smithson's will, for the "increase and diffusion of knowledge among men." The former is accomplished by promoting original scientific research, and the latter by publication and lectures. Managed by a Board of Regents. It coöperates with the Government and national scientific bodies.

Under the direction of the Smithsonian Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological and mineralogical collections belonging to the United States; and the Bureau of American Ethnology.

Secretary.—Charles D. Walcott.

Government Bureaus Under Direction of Smithsonian Institution—

National Museum: Assistant Secretary in Charge.—Alexander Wetmore.

National Gallery of Art: Director.—William H. Holmes.

Bureau of American Ethnology: Chief.—J. Walter Fewkes.

International Exchanges: Assistant Secretary in Charge.—C. G. Abbott.

National Zoölogical Park: Superintendent.—William M. Mann.

Astrophysical Observatory: Director.—C. G. Abbott.

Regional Bureau for the United States International Catalog of Scientific Literatures—

Assistant in Charge.—Leonard C. Gunnell.

National Academy of Sciences.—President.—A. A. Nichelson. Vice-President.—T. C. Merriam. Foreign Secretary.—R. A. Millikan. Home Secretary.—David White. Treasurer.—G. K. Burgess. Assistant Secretary.—Paul Brockett.

National Research Council:—Chairman.—Gano Dunn.

Pan American Union: Director General.—L. S. Rowe.

General Accounting Office:—Comptroller General of the United States.—J. R. McCarl.

Interstate Commerce Commission—

Commissioners: Clyde B. Aitchison, Charles C. McChord, Balthasar H. Meyer, Henry C. Hall, Joseph B. Eastman, John J. Esch, Johnson B. Campbell, Ernest I. Lewis, Frederick I. Cox, Frank McManamy, Thos. L. Woodlock.

United States Railroad Labor Board—

Public Group.—Ben W. Hooper, chairman; G. Wallace W. Hanger, vice chairman: Edwin P. Morrow.

Labor Group.—E. F. Grable, A. O. Wharton, W. L. McMenimen.

Management Group.—Horace Baker, J. H. Elliott, Samuel Higgins.

Civil Service Commission.—Commissioners: President, William D. Deming; George R. Wales, Jessie Dell.

United States Bureau of Efficiency.—Chief: Herbert D. Brown.

Federal Reserve Board—

Chairman.—Andrew W. Mellon, Secretary of the Treasury (*ex officio*). John W. McIntosh, Comptroller of the Currency (*ex officio*).

Governor.—D. R. Crissinger.

Vice-Governors. — Edmund Platt, Adolph C. Miller, Charles S. Hamlin, Edward H. Cunningham, George R. James.

Federal Trade Commission.—Commissioners: Vernon W. Van Fleet, John F. Nugent, Charles W. Hunt, Huston Thompson, William E. Humphrey.

The United States Shipping Board.—Members: T. V. O'Connor, E. C. Plummer, Meyer Lissner, W. S. Benson, B. E. Haney, W. S. Hill.

United States Shipping Board Emergency Fleet Corporation.—President, Elmer E. Crowley.

United States Railroad Administration.—Director General, James C. Davis.

Board of Tax Appeals.—Chairman, J. Gilmer Korner, Jr.

War Finance Corporation.—
Chairman.—Andrew W. Mellon, Secretary of the Treasury.
Managing Director.—Eugene Meyer.
Directors.—George R. Cooksey, Fred Starek, Floyd R. Harrison.

Alien Property Custodian.—Alien Property Custodian, Howard B. Sutherland.

United States Tariff Commission.—
Chairman.—Thomas O. Marvin.
Vice Chairman.—Alfred P. Dennis.
Commissioners.—Edward P. Costigan, Henry H. Glassie, A. H. Baldwin, Edgar B. Brossard.

United States Employees' Compensation Commission. — Chairman, Mrs. Bessie Parker Brueggeman; Harry Bassett, Charles H. Verrill.

United States Veterans' Bureau.—Director, Frank T. Hines.

Federal Board for Vocational Education. — Director, J. C. Wright.

Federal Power Commission.—
Commissioners.—Dwight F. Davis, Hubert Work, William M. Jardine.
Executive Secretary.—O. C. Merrill.

The Commission of Fine Arts.—Chairman, Charles Moore.

World War Foreign Debt Commission.—Chairman, Andrew W. Mellon; Frank H. Kellogg, Herbert Hoover, Reed Smoot, Theodore E. Burton, Charles R. Crisp, Richard Olney, Edward H. Hurley.

Personnel Classification Board. — Chairman, F. J. Bailey; Guy Moffett, W. H. McReynolds.

PERSONNEL OF THE JUDICIARY

By Arthur N. Holcombe

Professor at Harvard University

SUPREME COURT OF THE UNITED STATES

William Howard Taft (Ohio), Chief Justice, appointed 1921.

Oliver Wendell Holmes (Massachusetts), appointed 1902.

Willis Van Devanter (Wyoming), appointed 1910.

James Clark McReynolds (Tennessee), appointed 1914.

Louis Dembitz Brandeis (Massachusetts), appointed 1916.

George Sutherland (Utah), appointed 1922.

Pierce Butler (Minnesota), appointed 1922.

Edward Terry Sanford (Tennessee), appointed 1923.

Harlan F. Stone (New York), appointed 1925.

Officers of the Supreme Court

Clerk.—William R. Stansbury.

Deputy Clerks. — Philander R. Stansbury; C. Elmore Cropley.

Marshal.—Frank Key Green.

Reporter.—Ernest Knaebel.

CIRCUIT COURTS OF APPEALS OF THE UNITED STATES

First Circuit.—Mr. Justice Holmes; George Hutchins Bingham (New Hampshire); Charles F. Johnson (Maine); George W. Anderson (Massachusetts).

Second Circuit.—Mr. Justice Stone; Henry Wade Rogers (Connecticut); Charles M. Hough (New York); Martin T. Manton (New York); Learned Hand (New York).

Third Circuit.—Mr. Justice Brandeis; Joseph Buffington (Pennsylvania); J. Warren Davis (New Jersey); Victor B. Woolley (Delaware).

Fourth Circuit.—Mr. Chief Justice Taft; Edmund Waddill, Jr. (Virginia); John J. Parker (North Carolina); John C. Rose (Maryland).

Fifth Circuit.—Mr. Justice Sanford; Richard W. Walker (Louisiana); Nathan P. Bryan (Florida); Rufus E. Foster (Louisiana).

Sixth Circuit.—Mr. Justice McReynolds; Loyal E. Knappen (Michigan); Arthur C. Denison (Michigan); Maurice H. Donahue (Ohio); Charles H. Moorman (Kentucky).

Seventh Circuit.—Mr. Justice Butler; George T. Page (Illinois); Julian W. Mack (Illinois); Samuel Alschuler (Illinois); Evan A. Evans (Wisconsin).

Eighth Circuit.—Mr. Justice Van Devanter; Walter H. Sanborn (Minnesota); Robert E. Lewis (Colorado); William S. Kenyon (Iowa); Kimbrough Stone (Missouri); A. S. Van Valkenburgh (Missouri); Wilbur F. Booth (Minnesota).

Ninth Circuit.—Mr. Justice Sutherland; William B. Gilbert (Oregon); Erskine M. Ross (California); Frank H. Rudkin (Washington); William W. Morrow (California); William H. Hunt (California); Wallace McCamant (Oregon).

UNITED STATES COURT OF CUSTOMS APPEALS

William J. Graham (Illinois), presiding judge, appointed 1924.

James Francis Smith (California), appointed 1910.

Orion Metcalf Barber (Vermont), appointed 1910.

Oscar E. Bland (Indiana), appointed 1923.

Charles Sherrid Hatfield (Ohio), appointed 1923.

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA

George E. Martin, Chief Justice.
Charles H. Robb.
Josiah A. Van Orsdel.

COURT OF CLAIMS OF THE UNITED STATES

Edward Kernan Campbell (Alabama), Chief Justice, appointed 1913.

Fenton Whitlock Booth (Illinois), appointed 1905.

George Eddy Downey (Indiana), appointed 1915.

James Hay (Virginia), appointed 1916.

Samuel Jordan Graham (Pennsylvania), appointed 1919.

SUPREME COURT OF THE DISTRICT OF COLUMBIA

Walter I. McCoy, Chief Justice.
Wendell P. Stafford.
Frederick L. Siddons.
William Hitz.
Jennings Bailey.
Adolph A. Hoehling.

UNITED STATES GENERAL APPRAISERS

William B. Howell, presiding judge.
I. F. Fischer.
Byron S. Waite.
Charles P. McClelland.
Jerry B. Sullivan.
George Stewart Brown.
William C. Adamson.
George E. Weller.
George M. Young.

UNITED STATES MARSHAL'S OFFICE

United States Marshal.—Edgar C Snyder.

Chief Deputy Marshal.—Stephen B. Callahan.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney.—Peyton Gordon.

Assistants.—Lee A. Rover, Ralph Given, James O'Leary, John W. Fihelly, Raymond A. Neudecker, Joseph C. Bruce, David A. Hart, M. Pearl McCall, Joseph V. Connolly, William H. Collins, Thomas E. Lodge, George D. Horning, Jr., Thomas L. Jones, Neil Burkenshaw, Rebekah S. Greathouse, E. Russell Kelly, Albert A. Stern.

Special Assistants.—Capt. Harold W. Orcutt, A. Coulter Wells.

CONGRESS

By Arthur N. Holcombe
Professor at Harvard University

The sixty-ninth Congress, which convened for its first regular session on December 7, showed numerous changes in personnel as compared with its predecessor. There were 14 new members in the Senate, and 78 in the House. Most of the changes were produced by the 1924 elections; but death had ended the careers of several of the leaders. Senator Robert M. La Follette, of Wisconsin, independent presidential candidate in 1924, died June 18; and his party associate, Senator Edwin F. Ladd of North Dakota, died four days later. Senators Medill McCormick of Illinois, Selden P. Spencer of Missouri, and Samuel M. Ralston of Indiana, the latter one of the few men who ever refused the presidential nomination of a major party, were the other Senators to be removed by death. Six members of the House of Representatives also died before the regular session began. Robert M. La Follette, Jr., was elected to succeed his father in the Senate, and another of the deceased members of the House was also succeeded by his son. Two of the deceased Congressmen, Kahn of California and Rogers of Massachusetts, were succeeded by their widows. One other woman, Miss Mary T. Norton of New Jersey, was elected to the House. Among the prominent members of the sixty-eighth Congress, who were retired by the voters at the polls, were Senator Magnus Johnson of Minnesota, Farmer-Laborite; Senator Thomas Sterling of South Dakota; Senator A. O. Stanley of Kentucky; and Senator David I. Walsh of Massachusetts. Representative Everett Sanders of Indiana resigned his seat in order to become Secretary to the President, succeeding Mr. C. Bascom Slemp, who retired from that position on March 4.

The sixty-eighth Congress, which adjourned sine die on March 4, was in session during 215 actual days. During that time 12,474 bills were introduced, and 898 resolutions. Of these a total of 996 were adopted; including 632 public laws, one of which was passed over a presidential veto, 75 public resolutions, and 289 private laws and resolutions.

Organization and Committees.—The organization of the new House itself had been determined at Republican and Democratic caucuses of the members-elect, which were held in the preceding February; and the selection of Representative Nicholas Longworth of Ohio to be Speaker, of Tilson of Connecticut to be majority floor-leader, and of Garrett of Tennessee to be minority floor-leader, were promptly confirmed at the opening of the regular session in December. In the House of Representatives twelve Republican members who had followed the leadership of Senator La Follette in the presidential campaign of 1924 were deprived of their previous committee-assignments, in so far as they were desirable, and relegated to the bottom of unimportant committees. In the Senate, on the other hand, an effort was made by the Republican leaders to adjust their differences with the surviving followers of the Wisconsin insurgent-leader, including his son, Robert M. La Follette, Jr., who had succeeded to his father's seat.

PERSONNEL OF CONGRESS

By Milton Conover
Professor at Yale University

Political Complexion.—Politically the Senate of the Sixty-eighth Congress was composed of fifty-two Republicans, fifty-two Democrats, and two Farmer-Laborites. The House of Representatives contained 223 Republicans, 208 Democrats, an Independent, a Socialist, a Farmer-Laborite, and a vacancy. The Senate of the Sixty-ninth Congress contained fifty-five Republicans, forty Democrats, and one Farmer-Laborite. The House of Representatives was composed of 247 Republicans, 183 Democrats, three Farmer-Laborites and two Socialists.

Previous Service.—The parliamentary and administrative experience of the Sixty-eighth Congress may be inferred from the fact that twenty-four Senators had served in the House of Representatives, nineteen had been governors of states, and five had served both as representatives in Congress and as governors. All but twenty of them had served as Senators in at least one preceding Congress. The experience of the Senate of the next succeeding Congress was about the same, although the Senate had twelve new members. The House of Representatives of the Sixty-eighth Congress contained 311 members who had served in preceding Congresses; while the Sixty-ninth Congress contained 353 experienced members, many of whom had served in State legislatures as well as in preceding Congresses.

Speaker.—Immediately upon the assembling of the Sixty-ninth Congress, Nicholas Longworth of Ohio, who had served ten terms in Congress, was elected Speaker of the House, in accordance with a caucus of Republican members elect held in March, 1925. Among the leading committees elected by the House were these: on Accounts, Appropriations, Enrolled Bills, Interstate and Foreign Commerce, Mileage, Rules, and Ways and Means. In five cases the same chairman was elected in the Sixty-eighth Congress. In the other two as the chairmen had retired from Congress, the senior ranking members were chosen. This seniority of committee service, however, was not necessarily identified with seniority of service in the House, for most of the chairmen of these most important committees were filled by men who had served from four to seven terms only; yet there were many representatives of the majority party who had served more than seven terms in the House, and several who had served more than eleven terms.

Sectionalism.—Political sectionalism was apparently a factor in the election to committee chairmanships. For instance, Pennsylvania, strongly Republican, and consequently not having been especially catered to in presidential nominating conventions in recent decades, was represented in 1925 in the chairmanships of thirteen important congressional committees, including the committees on Foreign Affairs, Printing, Naval Affairs, Post Offices and Post Roads, Banking and Currency, the Steering committee and the Committee on Personnel of the House Service. Six other committee chairmanships were granted to the New York delegation, four to the Indiana, four to the Illinois—the vice-president's state—and two to Ohio—the speaker's state.

Apportionment.—Closely akin to this matter of committee assignment was the problem of congressional apportionment. The preference of these two congresses was to maintain its present membership of 435 representatives. The ratio of representatives to population is still the same as that which was based on the census of 1910, viz., one representative for every 211,877 inhabitants, and States like Vermont which had suffered a loss in population were deprived of one of their representatives whose seats were allotted to other states whose population had increased sufficiently to warrant increased representation in Congress under the new ratio. This practice did not insure increase in representation for the less populous sections beyond the Mississippi River. The question of geographical and economic factors in Congressional apportionment could not be averted. It was even suggested that the long distances from Washington of constituents and the consequent local inaccessibility of congressmen should be taken into account. Under the apportionment based on the 1920 census, New York City is allotted twenty-three representatives in Congress, while only twelve representatives are allotted to all of the population located in the "Mountain Time Belt" stretching from Canada to Mexico. Again, defining the natural metropolitan area of New York City so as to include all of the congressional districts that economically compose the metropolis, including seven of the Northern New Jersey districts, it is observed that this congested area lying within a radius of fifty miles of the Grand Central Depot, has thirty-one representatives or more than the entire representation of the twelve states lying between Puget Sound and Minnesota, and between California and Texas. Congestion of population in other cities than New York has resulted in larger urban representation in Congress. For instance, Chicago has nine congressmen, Philadelphia and Greater Boston each have seven, and Los Angeles has two. This factor, however, is tempered somewhat in that each of the sparsely populated states has just as many senators in Congress as have the over-populous states. Nevada with only 77,407 inhabitants, has three men in the two houses, and New York State, with a population of 10,385,227, has forty-five. In the Senate Nevada has as much voice in special and concentrated powers as another State with 134 times the population.

CONGRESSIONAL RULES

By Milton Conover

Professor at Yale University

Appropriations.—Four decades of comparative research and of public agitation looking towards improved methods of legislative procedure apparently was justified in some measure by the accomplishments in parliamentary law since the publication of the 1919 Year Book. After 1919, one of the first rules proposed to reestablish in the Appropriation Committee, virtually all of the major appropriation functions of the House of Representatives. By an amendment to the rules adopted on June 1, 1920, the Appropriation Committee was given jurisdiction over all of the principal appropriations including major portions of that formerly exercised by the Committees on Foreign Affairs, Military Affairs, Post Office and Post Roads and on Indian affairs. The Rule stipulated, likewise, that "no bill or joint resolution carrying appropriations shall be reported by any Committee not having jurisdiction to report appropriations, nor shall an amendment proposing an appropriation be in order during the consideration of a bill or joint resolution reported by a committee not having that jurisdiction." The provisions were preliminaries to the enactment of the Budget and Accounting Act of 1921.

General.—Both the Sixty-eighth and Sixty-ninth Congresses made significant changes in the Rules of Procedure, particularly the House. The major changes pertained to the powers and duties of the committees; election contests; the "Consent Calendar," and the "Discharge Rule." Modification of the latter constituted the principal change in the Rules for the Sixty-ninth Congress.

World War Veterans.—A new House Committee on World War Veterans' Legislation was created, January 18, 1924 (Rule 11, 51 c.), to consider all matters pertaining to "War-Risk insurance of soldiers, sailors, and marines, and other persons in the military and naval service of the United States or growing out of the World War, the United States Veterans' Bureau, the compensations and allowances of such persons and their beneficiaries, and all legislation affecting them other than civil service, public lands, adjusted compensation, pensions, and private claims." Despite these last exceptions, it was clear that the business of this Committee would be voluminous.

Contested election cases were brought under a new provision on January 18, 1924, when Rule XI was amended by Section 726A which stipulated that the "several election committees of the House shall make final report to the House in all contested election cases not later than six months from the first day of the first session of the Congress to which the contestee is elected except in a contest from the Territory of Alaska in which case the time shall not exceed nine months."

Speeding Reports.—The Committee on Rules in 1924 was subjected to further restraint through the addition of Section 725A to Rule XI, providing that "The Committee on Rules shall present to the House, reports concerning rules, joint rules and order of business within three legislative days of the time when ordered reported by the Committee. If such rule or order is not considered immediately it shall be referred to the Calendar and if not called up by the member making the report within nine days thereafter, any member designated by the Committee may call it up for consideration."

The Consent Calendar was brought under momentous regulation in 1924 and in 1925 through amendments to Rule XIII, a rule which had been adopted on March 15, 1909. These modifications required that three members, rather than one, must object to the consideration of a bill to prevent its being called from the Consent Calendar. Thus, the power of a single member to obstruct legislation for personal retaliation or intimidation, was lessened, in this instance. As finally amended, the rule provides that "After a bill which has been favorably reported shall be upon either the House or the Union Calendar any Member may file with the Clerk a notice that he desires such a bill placed upon a special calendar to be known as the 'Consent Calendar.' On the first Monday of each month immediately after the approval of the journal, and on the third Monday of each month immediately after the disposition of motions to instruct Committees which may be called up, the Speaker shall direct the Clerk to call the bills which have been for three days upon the 'Consent Calendar.' Should objection be made to the consideration of any bill so called, it shall immediately be stricken from such calendar, that such bill may be restored to the calendar at the instance of the member, and if again objected to by three or more members, it shall be immediately stricken from such calendar, and shall not thereafter be placed thereon: *Provided*, That the same bill shall not be called twice on the same legislative day."

"The Discharge Rule."—Governing the motion to discharge committees from the consideration of a public bill or resolution in its possession and permitting the bills being called up for discussion—was a subject of lively debate in former Congresses, especially in the Sixty-eighth and Sixty-ninth Congresses. It was discussed for six days in the former congress and its final modification by the Sixty-ninth Congress constituted the only major change in the House Rules during 1925. First adopted on June 17, 1910, the Discharge Rule was amended on February 3, 1912. Later, on January 18, 1924, it was amended with the object of permitting a minority of the membership to prevent a bill's being buried in committee—one of the older and prevalent practices of both the national and the state legislatures, excepting Massachusetts—a practice with sufficient far-reaching relationships as early as 1887 and 1912 to draw out the attacks of Woodrow Wilson in his *Congressional Government* and in his *The New Freedom.*

The discharge rule of 1924 provided that "A member may present to the Clerk a motion in writing to discharge a committee from the consideration of a public bill or resolution which has been referred to it thirty days prior thereto (but only one motion may be presented for each bill or resolution). The motion shall be placed in the custody of the Clerk, who shall arrange some convenient place for the signature of Members. A signature may be withdrawn by a Member in writing at any time before the motion is entered on the Journal. When members to the total number of one hundred and fifty shall have signed the motion it shall be entered on the Journal, printed with the signatures thereto in the Congressional Record, and referred to the Calendar of Motions to Discharge Committees."

Discharge Rule of December, 1925.—This clause, however, was altered on December 7, 1925, so as to permit a member to present a motion "to instruct a committee to report within fifteen days a public bill or resolution" rather than "to discharge a committee from consideration" of such instruments as was stipulated in the 1924 rule.

Furthermore the 1925 amendment required that motions calling bills from committees should be signed by 218 representatives rather than by just 150 when the House should be all present. This insured majority control of committee action in the House, and the Rule specified that "When a majority of the membership of the House shall have signed the motion it shall be entered on the journal, printed with the signatures thereto in the Congressional Record, and referred to the Calendar of Motions to Instruct Committees,"—rather than "referred to the Calendar of Motions to Discharge Committees" as in 1924.

Recognition on the floor of the House is reassured the signers of these motions by the 1925 Rule in the provisions that "On the third Monday of each month, immediately after the approval of the Journal, any Member who has signed a motion to instruct which has been on the Calendar at least seven days prior thereto, and seeks recognition, shall be recognized for the purpose of calling up the motion, and the House shall proceed to its consideration in the manner herein provided without intervening motion except one motion to adjourn. Recognition for the motions shall be in the order in which they have been entered."

Majority control of the procedure in operating these motions is guaranteed by the 1925 rules which states that "When the motion shall be called up, the bill or resolution shall be read by title only prior to a second being ordered by tellers. After the reading of the bill by title, the motion shall not be submitted to the House unless seconded by a majority of the membership of the House to be determined by tellers and clause 4 of Rule XV shall not apply to such second; if such motion fails of a second, it shall immediately be stricken from the Calendar and shall not thereafter be placed thereon."

Debates on these motions are regulated by the 1925 rule, by the requirement that "If a second be ordered, debate on such motion shall be limited to 40 minutes, one-half thereof in favor of the proposition and one-half in opposition thereto. Such motions shall require for their adoption an affirmative vote of a majority of the membership of the House. Whenever such motion shall prevail the committee shall report said bill or resolution to the House within 15 days thereafter and said bill or resolution shall be referred to its appropriate Calendar."

This significant amendment was adopted on December 7, 1925, by a vote of 208 to 196, thirty members not voting. Robust opposition was offered to the alteration, mostly on the part of the Democrats. Reasons for the adoption of the rules as stated on the floor of the House by Chairman Snell, were that, "The proposed rules strike out the discharge rule that was adopted at the beginning of the Sixty-eighth Congress. Every Member who was a Member of the House at that time knows that that was a compromise rule. It suited no one and never would have been adopted if either side had had a clear majority. It actually accomplished nothing. The only thing it did was to waste the time of the House and to throw the House into chaos and confusion such as we have never seen before since I have been a Member of the House of Representatives."

Tilson of Connecticut, floor leader, thought it absurd that a minority consisting of five votes more than one-third of the House, as is provided in the rule of the Sixty-eighth Congress should be able at any time to take from a committee of this House and from the responsible majority of the House the control of a bill and force the House to take action upon it.

Another argument was expressed

by Congressman Barkley of Kentucky thus: "No such rule as that has ever been dreamed of prior to this time. Before you can get any action on this rule you have to have three affirmative votes of a majority of all of the members elected."

Minor Changes.—Early in 1926, it was apparent that these changes would have to undergo severe tests before the end of the first session of the Sixty-ninth Congress. Other than this change in the Discharge Rule, there were practically no major changes in the House rules, excepting those that were adopted for the adaptation of the new amendments to the Discharge or Instruction rule; and a few rules altering the number of memberships in certain committees, e.g., those on Ways and Means, Judiciary, on Interstate and Foreign Commerce.

Senate.—With regard to the Senate Rules, it had been generally anticipated that efforts would be made to limit the time which individual senators might speak in debate, and that other modifications would be made. But as late as January 4, 1926, apparently nothing had been accomplished, except the delivery of an address in the Senate by Senator Pat Harrison of Mississippi, in opposition to the extra parliamentary efforts that had been made during the preceding recess. In early January, 1926, however, there were indications that attention would be given to this matter later on in the Session.

THE SUPREME COURT AND CONSTITUTIONAL LAW

By Howard Lee McBain
Ruggles Professor of Constitutional Law, Columbia University

AMENDMENTS TO THE JUDICIAL CODE

February 13, 1925, extremely important amendments to the Judicial Code were enacted by Congress. They affected the jurisdiction of the Supreme Court as well as of the lower United States courts. The technical parts of the act need not be reviewed here. Suffice it to say that direct review by the Supreme Court of cases decided in the territorial courts and the courts of the insular possessions was abolished, except for review by certiorari of certain important cases from the Philippine Islands. Direct review by the Supreme Court of judgments of United States District Courts, skipping the Circuit Courts of Appeals, was limited to certain suits under the antitrust and interstate commerce acts; to certain instances in criminal cases where the decision of the District Court is adverse to the United States; to permanent injunctions suspending the enforcement of state statutes issued by a court with three judges sitting; to judgments in certain suits to enforce, suspend, or set aside orders of the Interstate Commerce Commission; and in certain cases which arise under the livestock act of 1921.

Review by the Supreme Court of cases decided by the circuit courts of appeals can be obtained only by certification from such court asking for instructions, or by certiorari issued by the Supreme Court, or, where decision is against the validity of a state law, on writ of error or appeal. Review from the Court of Claims is only by similar certification or by certiorari. Appeal in habeas corpus proceedings is from the District Courts to the Circuit Courts of Appeals instead of as formerly in certain cases direct to the Supreme Court. The general tendency of the act will be to decrease the number of cases coming before the highest court of the land.

PERSONAL RIGHTS AS AGAINST THE UNITED STATES

A brief review follows of the more important questions of constitutional law that have been decided by the Supreme Court since the beginning of the October term 1924. The volume and page references are to the

Lawyers' Edition of the Supreme Court decisions.

Jury Trial in Contempt.—At the time of the enactment of the Clayton Act in 1914 there was a good deal of discussion of the constitutionality of the provision which authorized the accused to demand a jury trial in any case involving disobedience to a writ or decree of a United States court, provided the act done was of such a character as to constitute also a criminal offense either under federal or state law. Ten years elapsed before this question of constitutionality was finally settled. (Michaelson v. United States *ex rel.* Chicago etc. Ry. Co., 69 L. ed., 14.) Certain striking employees of the railroad were enjoined from combining and conspiring to interfere with interstate commerce by picketing and using force and violence.

Thereafter proceedings in contempt were instituted. The employees demanded trial by jury. This the district court denied "on the ground that the power of a court to vindicate or enforce its decree in equity is inherent; is derived from the Constitution as a part of its judicial power; and that Congress is without constitutional authority to deprive the parties in an equity court of the right of trial by the chancellor." The Supreme Court reversed this judgment and sustained the statute. The Court argued that the statute was of narrow scope, not interfering with the power to deal summarily with contempts committed in the presence of the court, and not reaching those cases of refusal to do something which a decree commands which may be enforced by coercive means or remedied by purely compensatory relief.

A criminal contempt and a criminal case are fundamentally the same. "The proceeding is not between the parties to the original suit, but between the public and the defendant." In a criminal case the accused has a constitutional right of trial by jury. "The statutory extension of this constitutional right to a class of contempts which are properly described as 'criminal offenses' does not" violate the constitution in any way. Whether from the viewpoint of the history of punishment for criminal contempts or from the viewpoint of common sense it is difficult to see how the Supreme Court could have reached any other conclusion.

Later in the term the Court decided another important point in the constitutional law of contempts. In an elaborate and learned opinion it was held that the President's pardoning power extends to convictions of criminal contempt. (*Ex parte* Grossman, 69 L. ed. 377.) "The language of the Constitution cannot be safely interpreted except by reference to the common law and to British institutions." The "background of the common law and English history before the American Revolution . . . show that criminal contempts were within the understood scope of the pardoning power of the Executive."

The records of the constitutional convention show that the clause "offenses against the United States" was presumably inserted to make clear that the President's pardoning power was not to operate upon offenses against the states. An offense against a federal court is an offense against the United States. "Moreover, criminal contempts of a Federal court have been pardoned for eighty-five years." Nor is there anything to the argument that this will destroy the independence of the judiciary and violate the principle of the separation of powers.

As for the wisdom and usefulness of the pardoning power as applied to criminal contempts, the Court, with fine restraint, asks: "May it not be fairly said that in order to avoid possible mistake, undue prejudice, or needless severity, the chance of pardon should exist at least as much in favor of a person convicted by a judge without a jury as in favor of one convicted in a jury trial?"

Undue Prejudice.—That "undue prejudice" and "needless severity" may be shown in contempt proceedings was strikingly illustrated in another case decided only a month later. (Cooke v. United States, 69 L. ed., 526.) The petitioner, an attorney, wrote a contemptuous letter to a United States district judge accusing him of prejudice and of listening to slander against the attorney's client. This contempt was not committed in open court. The court ordered the prisoner arrested, and "refused him time to secure and consult counsel, prepare his defense, and call witnesses, and this although the court itself had taken time to call in counsel as a friend of the court," and had the district attorney present "on the ground that it was a criminal case." In pronouncing sentence the court even made new charges which the contemners had been given no opportunity to hear, "much less to meet or explain."

The Supreme Court held that such procedure was not due process of law. In such a case the proper practice was to issue a rule to show cause. "Without any ground shown for supposing that a rule would not have brought in the contemners, it was harsh under the circumstances to order the arrest," and "the procedure pursued was unfair and oppressive." Moreover in cases of this kind wherever it is practicable the judge who is personally attacked should ask one of his fellow judges to take his place.

Burden of Proof.—A Congressional statute of 1909 made the mere possession of opium after 1913 "sufficient evidence to authorize conviction" for smuggling "unless the defendant shall explain the possession to the satisfaction of the jury." The burden of proof against the presumption of guilt was thus placed on the accused. Was this due process? "Yes," answered the Supreme Court. (Yee Hem v. United States, 69 L. ed. 540.) 'That a legislative presumption of one fact from evidence of another may not constitute a denial of due process of law, or a denial of the equal protection of the law, it is only ssential that there shall be some raional connection between the fact proved and the ultimate fact preumed, and that the inference of one act from proof of another shall not be so unreasonable as to be a purely rbitrary mandate." It is a logical nference that opium found in this ountry fourteen years after its importation was prohibited was imported unlawfully. And since the accused is bound to know of the prohibition it is not unreasonable to require him to show at his peril "the facts and circumstances which rebut, or tend to rebut, the natural inference of unlawful importation."

PERSONAL RIGHTS AGAINST THE STATES

Gitlow Case.—Following the assassination of President McKinley in 1901 the legislature of New York enacted a Criminal Anarchy statute. It provides punishment for any person who advises or teaches, by word of mouth or writing or printing or publishing, the overturning of organized government by force or violence or any unlawful means. Benjamin Gitlow was convicted under this statute for having been responsible for the publication in 1919 of the "Manifesto" of the Left Wing section of the Socialist party. (Gitlow v. New York, 69 L. ed. 708.)

This Manifesto is too long and complicated for adequate analysis here. In the opinion of the Supreme Court "it advocated, in plain and unequivocal language, the necessity of accomplishing the 'Communist Revolution' by a militant and 'revolutionary Socialism,' based on 'the class struggle,' and mobilizing the 'power of the proletariat in action,' through mass industrial revolts developing into mass political strikes and 'revolutionary mass action,' for the purpose of conquering and destroying the parliamentary state and establishing in its place, through a 'revolutionary dictatorship of the proletariat,' the system of Communist Socialism."

Gitlow contended that the statute as construed by the state courts was void as depriving him of liberty without due process of law, because it penalized the mere utterance of doctrine "having no quality of incitement," because there was no evidence of any concrete result flowing from or likely to flow from the publication, and because it did not advocate any "definite or immediate act or acts" of force and was not addressed to any specified persons.

The Supreme Court held for the

first time in this case that the guaranty of due process includes the guaranty of freedom of speech and the press. But the state law was held to be a valid exercise of the police power.

Relation to Schenck Case.—Speaking by Justice Sanford the Court sought to distinguish this case from that of Schenck v. United States (249 U. S. 51, 63 L. ed. 473), where it was said that the "question in every case is whether the words are used in such circumstances and are of such a nature as to create a clear and present danger that they will bring about the substantial evils." In the Schenck case "certain acts" had been prohibited by the statute; in this case the legislature had determined generally "that utterances of a certain kind involve such danger of substantive evil that they may be punished"; therefore "the question whether any specific utterance coming within the prohibited class is likely, in and of itself, to bring about the substantive evil, is not open to consideration." The state may seek "to extinguish the spark without waiting until it has enkindled the flame or blazed into the conflagration."

Dissent. — Justices Holmes and Brandeis dissented, refusing to admit that the Schenck case could be distinguished and abiding by their dissenting opinions in the Abrams and Schaefer cases. (250 U. S. 616, 63 L. ed. 1173; 251 U. S. 466, 64 L. ed. 360.) And Justice Holmes added another classical paragraph to the literature of constitutional law: "It is said that this Manifesto was more than a theory, that it was an incitement. Every idea is an incitement. It offers itself for belief, and, if believed, it is acted on unless some other belief outweighs it, or some failure of energy stifles the movement at its birth. The only difference between the expression of an opinion and an incitement in the narrower sense is the speaker's enthusiasm for the result. Eloquence may set fire to reason. But whatever may be thought of the redundant discourse before us, it had no chance of starting a present conflagration." Surely judicial reason was never set forth more eloquently.

Whitney Case.—The case of Charlotte Anita Whitney v. California (70 L. ed. 25), involving a prosecution under the California Criminal Syndicalism Act, was dismissed without opinion for want of jurisdiction. A rehearing has, however, been granted.

Oregon Compulsory Education.—Another case involving state interference with personal rights arose out of the Oregon Compulsory Education Act adopted under the initiative and referendum provisions of the state constitution in November, 1922, to be effective September, 1926. With minor exceptions the act required the attendance of all children at public elementary schools, and thus in effect sought to abolish private schools. Manifestly it was aimed primarily at the parochial schools of the Roman Catholic Church. The act was held void. (Pierce v. Society of the Sisters of the Holy Names of Jesus and Mary, 69 L. ed. 688.) The court followed the doctrine of Meyer v. Nebraska (262 U. S. 390, 67 L. ed. 1042), which held void as applicable to private schools a law prohibiting the teaching of German. The Oregon act "unreasonably interferes with the liberty of parents and guardians to direct the upbringing and education of children under their control," and deprives private schools without due process of law of "business and property for which they claim protection."

Kosher Law.—A New York law of 1922 prescribes a penalty for falsely representing meat to be "kosher" meat or for failure to display over meat "kosher" or "non-kosher," as the case may be, where both kinds of meat are sold in the same place of business. It was held that the statute was not void for want of any ascertainable standard of guilt because of the indefiniteness and uncertainty of meaning of the word "kosher." (Hygrade Provision Co. v Sherman, 69 L. ed. 169.) The punishment is not provided for mistakes but for fraud. Furthermore, the evidence, while conflicting, warrants the conclusion that "the term 'kosher' has a meaning well enough defined to en able one engaged in the trade to correctly apply it; at least as a general thing."

Garnishment.—Due process of law does not require that a judgment debtor shall be given notice and an opportunity to be heard before the issuance of a garnishment against his wages, debts, earnings, salary, etc. (Endicott Johnson Corp. v. Smith, 69 L. ed. 49.) A defendant who has had his day in court need not "after a judgment has been rendered against him, have a further notice and hearing before supplemental proceedings are taken to reach his property in satisfaction of the judgment."

LIQUOR PROHIBITION LAWS

Search of Automobiles.—The National Prohibition Act prohibits the search of a "private dwelling" without a warrant and the search of any "other building or property" without a warrant "maliciously and without probable cause." Thus "it left the way open for searching an automobile, or vehicle of transportation, without a warrant, if the search was not malicious or without probable cause." Is this in consonance with the Fourth amendment? The Supreme Court says that it is. (Carroll v. United States, 69 L. ed. 347.) "On reason and authority the true rule is that if the search and seizure without a warrant are made upon probable cause, that is, upon belief, reasonably arising out of circumstances known to the seizing officer, that an automobile or other vehicle contains that which by law is subject to seizure and destruction, the search and seizure are valid."

From the beginning of our history Congress has made a distinction between the search for contraband goods in a dwelling house or similar place and the search for like goods in course of transportation "where they readily could be put out of reach of a search warrant." A warrant therefore is not necessary for the search of an automobile for liquor. But there must be reasonable and probable cause. "It would be intolerable and unreasonable if a prohibition agent were authorized to stop every automobile on the chance of finding liquor."

In this case the court held that negotiations between prohibition agents and the defendant bootleggers for the purchase of liquor, which negotiations ended in no delivery, furnished sufficient cause for the search of the defendants' motor car some two and a half months later on an open road that was a well known bootleggers' route. Justices McKenna and Sutherland dissented.

Possession of Liquor.—The only other prohibition case of importance decided during the year was that which sustained a drastic Georgia law that prohibited the mere possession of liquor in the state. (Samuels v. McCurdy, 69 L. ed. 371.) The petitioner in the case had lawfully purchased his liquor in 1907 and 1915. He held it in his residence for personal use only. The Court held that the law was not ex post facto, since the penalty imposed was not for having purchased the liquor but for "continuing to possess the liquor after the enactment of the law." Nor was the law lacking in due process. The ultimate object of prohibition is to prevent any one from drinking liquor. If men are permitted to possess liquor for their own consumption there is danger of its becoming accessible to others.

"Legislation making possession unlawful is therefore within the police power of the states as a reasonable mode of reducing the evils of drunkenness." The fact that the law provided for the destruction of seized liquor by court order without requiring that the former possessor be given notice was also not a denial of due process. "If he desired to try the validity of the seizure, or the existence of the exception by which his possession could be made to appear legal, he could resort to suit to obtain possession . . . as he has done in this case."

LABOR LEGISLATION

Kansas Industrial Court.—The last shreds of the Kansas Industrial Relations Act were scattered to the winds in the second case of Wolff Packing

Co. v. Court of Industrial Relations of Kansas (69 L. ed. 499). In the first case (262 U. S. 522, 67 L. ed. 703) the Supreme Court held invalid that portion of the act which authorized the so-called court to fix wages. In the second case it held void the portions authorizing the fixing of hours of labor. The principle and reasoning of the first case governed the second. The act did not confer upon the "court" authority generally to fix wages and hours of labor. This authority was part and parcel of a system of compulsory settlement of industrial disputes in "essential industries," to the end that the business shall go on.

It is this system which the Court finds offending. After reviewing the earlier decision the opinion runs: "The system of compulsory arbitration which the act establishes is intended to compel, and if sustained will compel, the owner and employees to continue the business on terms which are not of their making. Such a system infringes the liberty of contract and rights of property guaranteed by the due process of law clause." As part of the system the power to fix hours of labor "shares the invalidity of the whole."

Workmen's Compensation.—On the other hand, the liberty of contract protected by the Fourteenth amendment is not invaded by a Nebraska law which limits attorneys' fees in case arising under the workmen's compensation act to such sums as the court might allow (Yeiser v. Dysart, 69 L. ed. 504). A large portion of those who come under the act need to be protected against improvident contracts. Moreover "an attorney practices under a license from the state and the subject matter is a right created by statute." The state may therefore attach conditions to the license to accomplish a public good.

Minimum Wages.—In 1923 the minimum wage act applicable to the District of Columbia was declared void by a vote of five to three, Justice Brandeis not participating (Adkins v. Children's Hospital, 261 U. S. 525, 67 L. ed. 785). Justice McKenna was one of the majority. With his retirement and the appointment of Justice Stone, it was possible, without Justice Brandeis, for the Court in another such case to divide four to four as it had in the first minimum wage case. This would manifestly have produced an anomalous situation. If Justice Brandeis voted, however, and if Justice Stone regarded minimum wage legislation as constitutional, it would have been possible to overrule the Adkins case.

This possibility was shattered by a memorandum filed on October 19, 1925, in which the Court held the minimum wage law of Arizona void on the authority of the Adkins case (Murphy v. Sardell, 70 L. ed. 25). Justice Brandeis alone dissented, thus putting himself on official record for the first time. Justice Holmes requested "that it be stated that his concurrence is solely upon the ground that he regards himself bound by the decision in Adkins v. Children's Hospital." Heretofore Justice Holmes has not usually regarded himself as bound by previous decisions to which he has vigorously dissented. But for some time to come minimum wage legislation appears to be a dead issue.

PUBLIC UTILITIES

Rate Making.—As might be expected there was during the year the usual crop of public utility cases arising under the due process clause. Nothing new in principle was involved in any of the rate-making cases. Ohio Utilities Co. v. Public Utilities Commission of Ohio, 69 L. ed. 293, reversed a "capricious" rate-fixing order of the Commission. So also an order of the Washington Department of Public Works in respect to rates for hauling logs was held void where the finding was "made upon evidence which clearly does not support it" (Northern P. R. Co. v. Department of Public Works, 69 L. ed. 485). The New York Transit Commission was enjoined from enforcing an order of 1912 in respect to a joint street railway fare which in the course of time had become confiscatory (Banton v. Belt Line Ry. Corp., 69 L. ed. 615).

Sidetrack Switching.—There was likewise nothing new in principle in the case which held that a railway company could be compelled to continue to operate a sidetrack switching service which had in itself become unprofitable (Western & Atlantic R. v. Georgia Public Service Commission, 19 L. ed. 515); or in the case which held that a street railway company could be compelled to maintain operation of an unremunerative part of its line (Fort Smith Light and T. Co. v. Bourland, 69 L. ed. 307); or in the case which held that an order to extend gas mains is not unreasonable or invalid because the rate fixed by law is non-compensatory, since the rate is not involved and the company may take appropriate steps to save its property from confiscation (New York *ex rel.* Woodhaven G. L. Co. v. Public Service Commission, 70 L. ed. 92).

Interstate Commerce — Chicago Drainage Canal.—Perhaps the most significant interstate commerce case of the year was that of the Sanitary District of Chicago v. United States, 69 L. ed. 200. For more than eleven years this case has been in the courts. The United States District judge, according to his own statement and without valid excuse, kept it six years after its submission to him before he finally delivered an opinion in 1920. It concerned the competence of the United States to determine the amount of water which the Sanitary District might drain from Lake Michigan into an artificial channel flowing into the Desplaines river and ultimately into the Mississippi.

The United States brought action to enjoin the District from withdrawing the amount of water required by state law to be withdrawn, or any amount in excess of that allowed by the Secretary of War acting under authority of Congress. In the language of Justice Holmes the District "took the bull by the horns" and denied the right of the United States to interfere.

Needless to say the Court rendered a smashing decision in vindication of the federal competence. This was not a controversy between equals. The power of the United States to prevent obstructions to interstate and foreign commerce is superior to that of the states to provide for the welfare of their inhabitants. Even if the United States had given its consent (which an analysis of its acts showed that it had not done) it would not be estopped from subsequently asserting its paramount authority. Any other conclusion than that reached by the Court would have been unthinkable.

Intrastate Commerce.—The case of Houston, E. & W. T. R. Co. v. United States (234 U. S. 342, 58 L. ed. 1341, known as the Shreveport Case and decided in 1914) was an epoch-making decision in the law of interstate commerce. Now comes Lancaster v. McCarty (69 L. ed. 396) somewhat extending the rule of the Shreveport Case. Two rugs were damaged in being shipped from one point to another wholly in Texas. They were shipped under regulations of the Interstate Commerce Commission with respect to the classification of traffic and fixing of rates, which regulations were established pursuant to the decision of the Shreveport Case. These regulations permitted limitation of the carrier's liability on the bill of lading. The Texas law prohibited railroads from limiting their liability as it existed at common law.

The Shreveport Case held that the Interstate Commerce Commission, in order to prevent discrimination against interstate commerce, might direct railroads to ignore rates fixed by the state commission for intrastate traffic. This case holds that classification and rates are bound together. "The Interstate Commerce Commission, therefore, had full authority to issue this order for the adoption of the Western Classification for intrastate points between Houston and Cisco, both in Texas. The conflict between the revised statutes of Texas and the order of the Interstate Commerce Commission can only be settled by the recognition of the supremacy of the federal authority."

Exclusion of Harmful Shipments.—A further recognition of the police power of Congress as derived from the commerce power was made in the case sustaining the constitutionality of the National Motor Vehicle Theft

Act (Brooks v. United States, 69 L. ed. 398). The cases upholding the laws excluding from interstate commerce diseased stock, lottery tickets, adulterated articles, persons transported for immoral purposes, intoxicating liquors, and prize fight pictures were relied upon. In all of these cases the law aimed to prevent interstate commerce from being used to accomplish harmful results to the people of other states.

Child Labor Products.—The child labor law enacted under the commerce power and declared void by the Court (Hammer v. Dagenhart, 247 U. S. 251, 62 L. ed. 1101) was distinguished. This was "a congressional attempt to regulate labor in the state of origin. Articles made by child labor and transported into other states were harmless, and could be properly transported without injuring any person who either bought or used them." While the decision upholding this theft act was undoubtedly sound and the act itself useful, it is nevertheless difficult to see why the argument used in the child labor case does not also apply here. Is it not an attempt to regulate theft in the state of origin? Is not a stolen motor car harmless, and can it not be transported without injuring any person who innocently buys or uses it?

Michigan Common Carrier Law.—Transportation of goods and passengers by motor vehicle has become so common and is developing so rapidly that three decisions of the Supreme Court in respect to such transportation across state lines are of unusual practical significance. One of them concerned a Michigan law which declared all persons engaged in the transportation of persons or property for hire by motor vehicle to be common carriers, and required them to furnish indemnity bonds and to pay fees for engaging in the business. As applied to a person who under three contracts engaged in the transportation of goods from Detroit to Toledo the act was held void (Michigan Public Utilities Commission v. Duke, 69 L. ed. 207). The plaintiff was held to be a private carrier, not undertaking to carry for the public. To put upon him the duties and liabilities of a public carrier and the obligation of furnishing an indemnity bond was to burden and interfere with interstate commerce. Moreover, to transform a private carrier into a public carrier by legislative fiat deprives of property without due process.

Washington Bus Case.—The second case involving interstate transportation by motor vehicle arose out of a law of Washington which required that common carriers by motor vehicle for hire should obtain from the director of public works a certificate of convenience and necessity. The plaintiff was refused permission to operate an auto stage route from Seattle to Portland on the ground that the territory was already adequately served. The Court held that the primary purpose of the act was not to regulate the uses of the highways in the interest of safety but to prohibit competition. It was a regulation of interstate commerce, not merely a burden but an obstruction. As applied to interstate carriers the act was void (Buck v. Kuykendall, 69 L. ed. 301).

Maryland Bus Case.—The third case, arising out of a Maryland law was practically identical with the case just mentioned. Reference had been made in that case, however, to the fact that the highway involved in Washington had been built with federal aid. In the Maryland case the Court said that this was not material to the rule laid down (Bush & Sons Co. v. Maloy, 69 L. ed. 303). "The Federal legislation is of significance not because of the aid given by the United States for the construction of particular highways, but because those acts make clear the purpose of Congress that state highways shall be open to interstate commerce."

FEDERAL TAXATION

Salaries of Judges.—There were during the year only two cases arising under federal tax laws that involved questions of constitutionality. In 192 the Supreme Court decided the delicate question that a tax upon the salaries of judges levied after their appoint ment to office was a diminution of their "compensation" and was therefore prohibited by the constitution (Evans v. Gore, 253 U. S. 245, 64 L. ed. 887). In 1925 the Court applied the same rule to the salaries of judges appointed subsequent to the enactment of the tax law (Miles v. Graham, 69 L. ed. 686). The question depended upon the import of word "compensation" in the constitutional provision. In the Court's opinion the compensation referred to was fixed exclusively by the salary law, whether that law was enacted before or after the tax law, and whether the judge was appointed before or after the tax law was passed. Thus is it settled that the salaries of federal judges are not subject to income tax under any circumstances, Justice Brandeis dissenting without opinion.

Cuban Subsidies.—A New Jersey corporation, owning and operating a railroad in Cuba, received subsidies from the Cuban government. These were held not to be income within the meaning of the Sixteenth amendment (Edwards v. Cuba R. Co., 69 L. ed. 717). "The subsidy payments were proportionate to mileage completed; and this indicates a purpose to reimburse plaintiff for capital expenditures." They were not profits or gains and do not constitute income.

STATE TAXATION

Transfer of Tangible Property.—Two important points in respect to state inheritance tax laws were decided in Frick v. Pennsylvania (69 L. ed. 692). Under the Pennsylvania law the attempt was made to tax the transfer of tangible personal property of the Frick estate having its situs in New York and Massachusetts. It had long ago been held that corporations could not be taxed on such property (Union Refrigerator Transit Co. v. Kentucky, 199 U. S. 194, 50 L. ed. 150); and other cognate points had been settled by the Court, but not this precise issue. It was urged by Pennsylvania that the tax was not upon the property but upon its transfer only. The courts help that the transfer of this tangible personal property took place and was subject to tax only in the state of its situs. "True, its owner was domiciled in Pennsylvania, but this neither brought it under the jurisdiction of that state nor subtracted anything from the jurisdiction of New York and Massachusetts. In these respects the situation was the same as if the property had been immovable realty."

The contrary rule as to intangible personalty remains as established (Blackstone v. Miller, 188 U. S. 189, 47 L. ed. 439; Bullen v. Wisconsin, 240 U. S. 625, 60 L. ed. 830). Also the case was distinguished from that in which a tax is imposed by a state on the transfer of stock of a corporation of that state, which stock forms part of the estate of a nonresident, the graduated tax being imposed with reference to the value of the entire estate (Maxwell v. Bugbee, 250 U. S. 525, 63 L. ed. 1124). In such case the state does not attempt to tax the transfer of outside property. The only bearing which such property has is that it affects the rate of the tax imposed on property that is within the state.

So likewise the case was distinguished from that in which tax exempt bonds of the United States were allowed to be included in an estate for inheritance-tax purposes (Plumer v. Coler, 178 U. S. 115, 44 L. ed. 998). "The objection to the present tax is that both the property and the transfer were within the jurisdiction of other states."

The second point decided in this notable case is that stocks of corporations of other states must be computed by the state of domicile with a deduction for the transfer taxes paid in those states. The theory upon which this rule rests is that these stocks could not be brought within the jurisdiction of Pennsylvania at all for purposes of taxing their transfer until such transfer taxes as were imposed by the states which created the corporations had been satisfied. Those states were "lienors in possession"; and "so much of the value as was required to release the superior claim of the other states was quite beyond Pennsylvania's control."

Inheritance Tax Deductions.—The inheritance-tax law of California provides that no deduction shall be made for any inheritance tax paid to the United States. In consequence the law results in imposing "a much larger proportionate tax on the succession to the residuum of a large estate than a smaller estate, although the residuary estate and the residuary legacy be equal in each instance." It was urged that this was a denial of equal protection "since the privilege of receiving residuary legacies of like amounts by persons of like relationship is subjected to unequal taxation, the inequality depending upon the size of the estate." The Court held, however, that the California law combined the principles of a tax on the transfer of property at death and a tax on the privilege of succession; that both could be made the basis of classification in a single taxing statute; and "that the amount of tax which the legatee shall pay may be made to depend both on the total net amount of the decedent's estate passing under the inheritance and testamentary laws of the state, and the amount of the legacy to which the legatee succeeds." Such a statute is not unreasonable (Stebbins v. Riley, 69 L. ed. 456).

Effect of Corporation Taxes.—Differing tax laws of two states were held void as imposing an undue burden on interstate commerce. The first of these, an Ohio statute, imposed on foreign corporations having common stock without par value an annual license fee of five cents per share upon the proportion of the number of shares of *authorized* common stock, represented by property owned and used and business transacted in the state. The Court held that the act violates the commerce clause (Air-way Electric Appliance Corp. v. Day, 69 L. ed. 10). "The inevitable effect of the act is to tax and directly burden interstate commerce of foreign corporations permitted to do business in Ohio, and engaged in interstate commerce, wherever the number of shares authorized, subject to the charge of 5 cents each, exceeds the number of outstanding shares attributable to or represented by the corporation's property and business in that state."

The act also violates the equal protection clause. For "plainly the fee, to the extent that it is based on a number of shares in excess of those oustanding, has no relation to what was paid in for the stock, or to its value, or to the amount of the plaintiff's capital, its property, or its business, intrastate in Ohio or interstate. The act, in its practical operation, does not require like fees for equal privileges held by foreign corporations in Ohio under the same circumstances. Unless, under the laws of the state where organized, they chance to be authorized to issue the same number of nonpar-value shares, the annual franchise fees imposed on foreign corporations having the same amount of property and business, and exercising the same privileges in Ohio, will not be the same."

Missouri Franchise Tax.—Interstate commerce was also held to be burdened by a Missouri "franchise" tax that was levied upon a Maryland corporation which owned and operated an oil pipe line extending from Oklahoma through Missouri into Illinois, but neither receiving nor delivering oil in Missouri. Its principal office was in Missouri, where it also employed many persons, maintained telegraph and telephone lines, auxiliary pumping stations, automobile passenger and truck services, and exercised the right of eminent domain. The Court held that the "tax was one upon the privilege or right to do business," and that despite its ancillary businesses within the state, the business of this corporation was wholly interstate. Its operations within the state did not constitute "the doing of a local business." Hence the tax was held invalid as applicable to this corporation, Justice Brandeis dissenting (Ozark Pipe Line Corp. v. Monier, 69 L. ed. 210).

Licenses on Interstate Business.—As might have been expected by those who have followed the course of interstate commerce decisions, an ordinance of Portland, Oregon, which required persons who take orders from place to place and who receive deposits in advance to secure licenses and file bonds, was held inapplicable to solicitors of a company engaged entirely in the business of transporting goods in interstate commerce upon such orders (see case of Real Silk Hosiery Mills v. Portland, 69 L. ed. 639).

Special Tax Assessments.—Viewed in the light of the railway-aid legislation of the middle nineteenth century there is something mildly ironical about present-day laws which lay special assessments upon railway corporations for road improvements. Such laws, have, however, been previously upheld; and there was really nothing new in the case which sustained such an assessment by a road improvement district in Missouri, the assessment having been subsequently ratified by special act of the State legislature (Kansas City S. R. Co. v. Road Improvement District No. 3, 69 L. ed. 142). The railway contended that it would receive no benefit and that because of disproportions it was denied equal protection. The Court held that "under the evidence produced, it is an entirely admissible view that the railway property will be substantially benefitted by the road improvement, and that the benefits are fairly assessed as between that property and the farm lands and town lots. . . . Forecast and estimate based on a solid premise of fact and experience are not to be confused with mere speculation and conjecture."

In another case it was held that due process does not require that the preliminary expenses of a proposed road improvement, which was abandoned, should be assessed according to benefit instead of according to assessed valuations of property for tax purposes. This was true even where the tax imposed on the railway corporation was in excess of the unconfirmed estimated benefit (Missouri P. R. Co. v. Western Crawford Imp. Dist., 69 L. ed. 74).

An improvement district in Arkansas included certain lands belonging to the United States, which of course were not assessed. After the completion of the improvement the United States conveyed the lands; and the district commissioners, acting under warrant of state law, made a reassessment and included these lands. This action was held void as a deprivation of property without due process (Lee v. Osceola & Little River Road Imp. Dist., 69 L. ed. 704). This was not the case of general taxes assessed after the government title had passed. The tax was imposed for benefits accruing from improvements made while the United States still owned the property. "Such a liability for the further assessments of taxes would create a serious encumbrance upon the lands, and its subsequent enforcement would accomplish indirectly the collection of a tax against the United States which could not be directly imposed."

NATIONAL AND STATE CIVIL SERVICE

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

THE FEDERAL SERVICE

Improvement of Tests.—The outstanding developments in civil service administration during the past year are to be seen in improved administration and in the effecting of economies and a very marked increase of efficiency in personnel rather than in any single notable extension of the merit system by legislation or executive orders. Much more work is being done and of a higher order, without marked increase in the number of employees. An increasing proportion of higher positions is being filled by promotion instead of from the outside; and the service is becoming more inviting as a career.

Progress has been marked in improving the examinations so as to test knowledge and the ability to apply that knowledge; and especially in testing the aptitude of candidates with respect to adapting themselves readily to the particular position for which examined. This has been demonstrated by definitely ascertaining the relation between the performance of candidates in the examinations and their actual production following appointment in the performance of their duties. For example, it was found that the work of two hundred distributors in the Chicago Post Office from day to day could be definitely measured. They were subjected to various types of tests until a test was arrived at which bore a close correlation with their accomplishment on duty. Thus a test could be applied to grade applicants justly according to their relative abilities. Tests have been devised in the railway mail and other branches of the service by a similar process which definitely establish the actual ability of the candidates tested as measured by their efficiency following appointment in the course of their actual work.

Reductions of Force.—The public is more interested in economies effected by reduction of force. However, the increased business of the country has caused an increase of about 5,000 employees in the postal service. The payment of the bonus to veterans, the agricultural census, the valuation work of the Interstate Commerce Commission and other new activities created by legislation offset reductions of force, and resulted in about 10,000 additional employees.

In reduction of force care has been taken to conserve training by treating the service as a whole and transferring surplus employees to parts of the service where their experience can be utilized. In an order of June 4, 1925, the President issued rules to govern the selection of employees in reductions of force, giving credits for military service, seniority, dependency.

Number of Employees.—The nearest estimate which can be made of the whole number of employees in the competitive classified service is 415,000, of whom approximately 270,000 are in the postal service. This number excludes all positions subject to confirmation by the Senate, among which are Presidential postmasters; also positions excepted from competitive examination under Schedule A of the civil service rules, and unclassified examination under Schedule A of the civil service rules, and unclassified laborers.

Legislation to provide for the inclusion of all postmasters within the jurisdiction of the Civil Service Commission, which was advocated by the President in his message to Congress, has not made any progress, due largely to the political interest that attaches to these places.

Salary Increases.—A flat increase of $300 in salaries paid to employees in the postal service, about 300,000 in number, has been made. Unskilled postal laborers now have an entrance salary of $1500 a year and the National Federation of Federal Employees is calling to the attention of Congress and high executive and administrative officers that this should mean the establishment of a minimum wage of $1500 in the federal service.

Classification.—Some slight gains have been made to the classified service by the inclusion of positions heretofore filled without examination. Appointing officers are increasingly desirous of making avail of the expert machinery of the Commission in testing the qualifications of applicants both for original entrance to the service and for promotion.

The retirement system greatly promoted efficiency. It is supported wholly by enforced deductions from the salaries of employees, and the fund to their credit exceeds forty-five million dollars. The Government would profit by more liberal annuities. The purity of the service has been aided by investigation of the careers of applicants to discover frauds; the finger-print system and comparison with police records being used where important. Prosecutions have been instituted as a deterrent to fraud.

Oral and Physical Tests.—Oral tests have been devised which are found to be helpful in testing the personality of applicants for higher positions where personality is an important element, as, for instance, positions the duties of which require meeting the public. These tests embrace such qualities as appearance, force of character, initiative, keenness of perception, judgment and coherence in spirit. Physical tests are more generally required for entrance to the service, promoting health and minimizing accidents, insuring not merely employees free from disabling defects, but reducing the liability of the Government for compensation due to disability.

Commissioner Gardener.—Mrs. Helen H. Gardener, the first woman to serve as a Civil Service Commissioner, died in office July 29, 1925. She served from April 13, 1920, a period of marked advance in the merit system and the ideals for which it stands. The Retirement Act and the Reclassification Act were achievements during her period of service. Her contribution in making the civil service an inviting career for women and in bringing the personal needs of the service to public and Congressional attention was especially notable. Many discriminations and injustices, both to men and women, existing in the departments were relieved by her efforts, in coöperation with her colleagues, and she was equally zealous in the uplift of men as she was in the uplift of women. The women employees of the Commission will cherish her memory because of her solicitude in their welfare and in according them opportunity for self-expression and for advancement equally with men employees.

The *Bulletin* of the Commission said that "her contribution in making the civil service an inviting career for women and in bringing the personnel needs of the service to public and Congressional attention was especially notable. Many discriminations and injustices, both to men and women, existing in the departments were relieved by her efforts in coöperation with her colleagues, and she was equally zealous in the uplift of men as she was in the uplift of women." President Coolidge appointed Miss Jessie Dell, of Georgia, a Democrat, to succeed Mrs. Gardener. Miss Dell has been in the Government service for many years.

U. S. Bureau of Efficiency.—This Bureau is charged by law with two functions relating to Government personnel, namely: (1) the establishment of a system of efficiency ratings for the classified service in the several executive departments in the District of Columbia, and (2) the administration of the Classification Act of 1923 in conjunction with the Bureau of the Budget and the U. S. Civil Service Commission through the Personnel Classification Board, whose membership consists of one representative of each of the three establishments.

During the past year, the Bureau has completely revised the system of efficiency ratings applicable to departmental employees, and has extended the system to embrace virtually all employees in the classified departmental service. Two ratings have been made under the amended system, the first as of November 15, 1924, and the second as of May 15, 1925. The system is operating satisfactorily, and the ratings established thereby constitute the basis for promotions, demotions, dismissals for inefficiency and separations on account of reduction in force. This Bureau assigns certain members of its staff to the Personnel Classification Board, who work under the direction of the Board.

Classification.—The salary scale established by the Classification Act of 1923 for positions in the Departments and Independent Establishments at Washington became effective on July 1, 1924. The application of this new scale resulted in raising the average annual compensation of the 54,000 employees affected from $1,674 to $1,749, a *per capita* increase of $75 per annum. Under the Act a range of compensation is provided for each grade of position and the salary rates fixed initially for the majority of positions fall toward the lower part of the various salary ranges. Assuming that eventually the average of the salaries will rise to the middle of the range for each kind of employment a further *per capita* increase of about $66 may be expected. This, however, will depend upon the appropriations that may be made by Congress.

Personnel Classification Board.—On July 30, 1924, the Personnel Classification Board — the agency charged with the administration of the Act—published specifications of the 300 classes of positions established by the Board for the 54,000 positions in the service at Washington. In November, 1924, the Board, in the exercise of authority vested in it by the Act, reviewed and approved a system of efficiency ratings proposed by the Bureau of Efficiency for positions at Washington subject to the Classification Act. Under this system the graphic scale method of rating is used and a number of different elements are rated according to the class of work involved. This marks a radical change from the former system established by the Bureau of Efficiency in 1921 in which judgments of rating officers were expressed in numerical terms and but two elements, quantity and quality, were considered.

Upon the recommendation of the Board, the President on June 4, 1925, issued an Executive Order rescinding a provision of a former Executive Order which was a part of the old efficiency rating system and which provided for separations on account of reduction of force in the reverse order of efficiency ratings, and providing instead that to the efficiency rating of all those rated as satisfactory workers should be added credits for length of service and permitting a small additional credit for dependents. The order provides, further, in accordance with law, that veterans whose efficiency ratings are "good" (80% or above) are to be preferred for retention and that with this exception separations and demotions shall be made on the basis of the rating thus arrived at beginning with those having the lowest ratings.

The National Civil Service Reform League believes that the personnel problem of the government should be centralized in one agency and that the agency best fitted for the work is the Civil Service Commission. Therefore in accordance with the League's recommendations a bill was introduced in the last session of Congress by Mr. Lehlbach, the Chairman of the Civil Service Committee of the House, which would abolish the Reclassification Board and transfer all the work and the functions of that Board to the Civil Service Commission. This bill passed the House of Representatives in the closing days of the last session, but was held up in the Senate just before adjournment.

Merit System in Prohibition Enforcement.—By the Prohibition (Volstead) Act of October 28, 1919, the prohibition enforcement force, other than clerks, is allowed to be appointed without regard to the civil service rules. This is generally admitted to be one of the worst features of the system. The Anti-Saloon League formally announced that at the session of Congress beginning in December, 1925, it would urge the passage of the provisions of the Cramton Bill applying civil service rules, which failed at the last session. Such an amendment to the Prohibition law would conform to the public will and conscience under the terms of the Eighteenth Amendment to the Constitution. The National Civil Service Reform League has persistently advocated this change, maintaining, as now the Anti-Saloon Leagues does, that no small part of the inefficiency of prohibition enforcement is due to the fact that enforcement officers are chosen on the spoils basis. In a formal statement issued in August it declared that the Anti-Saloon League "is not seeking to dictate appointments but it is fighting against their attempted domination by the enemies of the law and its enforcement." Asserting that "certain papers had misconstrued as opposition to the plan a recent statement by officials of the League that if it 'does not work nothing will,'" the group signing this pronouncement said the League "has long advocated the reorganization of the prohibition unit so as to place responsibility definitely; to exclude political influence and to secure coöperation from the various Government departments. Accepted as a step in this direction the new reorganization (infra) merits support. The measure of its success will depend upon the freedom with which it is permitted to operate."

A radical reorganization was made of the Prohibition Bureau, General Lincoln C. Andrews, under direction of the Secretary of the Treasury, working in collaboration with Commissioner Blair of the Internal Revenue Service, and Commissioner Haynes of the Prohibition Unit. The country was divided into twenty-two sectors, the divisions being bounded by Federal judicial district lines, with a view to removing the question of enforcement from state influence and making it entirely a Federal matter. For each sector a prohibition administrator was appointed, selected for personal fitness and executive and business ability, with full authority, and he is held accountable for the enforcement of the law and all personnel within his district. The plan is one of decentralization, with a view to economy and efficiency, to permit the use of a smaller personnel with higher qualifications. The Washington headquarters serve to maintain a uniform policy and coöperation among the districts. It is believed that the Federal function in prohibition enforcement is to stop the sources of supply; importation; diversion of illegitimately manufactured alcohol; the illegitimate manufacture and transportation of alcohol and alcoholic beverages. Federal law-enforcement energies will be directed primarily against the bootleg industry in all phases of operation. Effort will be made to assist and develop local enforcement.

Bureau of Public Personnel (Fred Telford, 26 Jackson Place, Washington, D. C., Director).—One of the major projects of this Bureau has been the preparation of a series of articles dealing with classification and salary standardization in the public service. It was an ambitious attempt to formulate the best practices developed in this field as the result of surveys and formal research work for which from $2,000,000 to $3,000,000 of public money had been spent. In coöperation with a committee of the American Library Association a classification and salary standardization plan for the whole library profession was also worked out. A critical appraisal of the teacher-examining and related work in a number of eastern states and cities was made and published. In view of the existing confusion in public-service employment terminology, recommendations were made for the use of about 100 carefully selected and carefully defined terms. About half of the time of the staff of the Bureau had been devoted to the preparation of tests for specific classes of positions. Most of these tests represent the judgment of the Bureau staff as to the best civil service, industrial, and psychological practice; for some of the classes standardized tests have been developed. In every case the test material has been published or otherwise made available for public and industrial personnel administrators. Standardized tests were worked out and published for bacteriologist, pathologist, and automobile driver, and suggested tests were prepared and published for patrolman, fire fighter, food inspector, senior clerk, supervising clerk, prison guard, hospital attendant, painter, janitor, and senior library assistant.

National Assembly of Civil Service Commissions (Charles S. Shaughnessy, Chief Examiner of the Civil Service Commission of Philadelphia, Secretary), organized in 1906, met in Los Angeles, Cal., June, 1925, with David J. Reese, of California, presiding. Oliver C. Short of Maryland was elected president for 1925-6. The 1926 meeting will be held in Philadelphia.

Joint Report on Civil Service.—A joint committee on civil service, representing the National Municipal League, the National Civil Service Reform League, the Association of Civil Service Commissions and the Governmental Research Conference, has prepared a report, which contains a survey of the present situation respecting the merit system in city and state government; recommendations regarding the form of organization of the personnel agency, and proposals for a law covering the subject. Charles P. Messick, secretary of the New Jersey state civil service commission, in coöperation with Fred Telford of the Bureau of Public Personnel Administration, carried the burden of drafting the report. Colonel H. M. Waite, former City

Manager of Dayton, who represents the National Municipal League, was chairman of the committee.

Civil Service in Canada. The Civil Service Research Branch of the Citizens' Research Institute of Canada has been organized with Principal W. L. Grant of Upper Canada College as its head. This organization is patterned after the National Civil Service Reform League (q.v.). The movement has grown out of the action of the Citizens' Research Institute, which declared for an educational campaign for the purpose of enlightening public opinion on the importance of proper public personnel administration in its relation to effective and economical government. The operation of the Canadian Civil Service Administration has been the subject of House and Senate reports by the Canadian Parliament. The result, as indicated in the Malcolm report of the House of Commons of 1923 and the Senate report of 1924, is a general endorsement of the merit system and its administration in the Dominion of Canada.

Local Standardization.—The Board of Supervisors of the City and County of San Francisco appropriated $5000 to the Civil Service Commission for a classification survey and to prepare a plan of salary standardization for 1926. This action was taken to carry out a recently adopted charter amendment prescribing such procedure.

A legislative Investigating Committee in New Jersey (known as the Bright Committee) made a comprehensive survey of every department, board, commission, institution and agency with a view to presenting to the Legislature of 1926 a comprehensive plan of reorganization for the entire State government.

Classification and salary standardization studies have been made in Detroit and Cleveland. In Detroit the Commission is using the classification, but due to the action of the Detroit Bureau of Governmental Research, the Council did not put into effect the salary standardization. It appears probable, however, that this will be done next year. In Cleveland the work is getting well under way and the whole situation looks promising.

Civil Service in New Charters.—The new charter for Kansas City, Mo., provides for a city manager and a personnel department with the head appointed by the manager. This is an interesting experiment which may throw light on what happens to the merit system in a large city under the city manager form of government. The experiment is to some extent vitiated by the fact that the whole employment list is certified to the department head. Closely akin to this is the situation in Cleveland where a very marked improvement has come about since the city manager form of government went into effect early in 1924, but where the traditional form of civil service commission was retained.

The new charter for Fort Worth, Texas, provides for the merit system and by an overwhelming vote Oakland, California, placed the library and park employees under the merit system.

An Ohio law now makes it possible for the State Civil Service Commission to delegate to the largest municipality in any county the handling for the state commission of employment matters for that county. The Cleveland commission has been designated to act for it in Cuyahoga County.

In Detroit a labor examiner has been made a member of the staff of the City Service Commission to make a serious attack upon the selection through competitive tests of skilled, semi-skilled, and unskilled laborers. The appointment was made in May, 1925. Already there have been significant developments. Payroll padding amounting to about $10,000 has been uncovered. Two people are already under indictment for their part in these frauds.

Court Decisions on Civil Service.—A decision of the New York Court of Appeals, in what is known as the Ottinger case, is of great moment to the application of the merit law, as it defines clearly the powers of the Legislature in the matter of appointment to positions under newly-created bureaus. A statute passed in 1921 provided that "for the purpose of this article, the Attorney General may in his discretion and without civil service examination, appoint and employ, and at his pleasure remove such deputies, officers and other persons as he deems necessary and determine their duties and fix their compensation." This statute was enacted for enforcement of a class of legislation known as the "blue sky laws," with employees engaged on "confidential work."

Attorney General Ottinger, while holding that the said employees were not within the purview of the Civil Service Commission, nevertheless, submitted the payroll to the latter body for its certificate that the appointments were made according to law. The Commission refused to honor the exemption and held that the appointments were in violation of the provisions of the State Constitution in that it was practicable to determine the merit and fitness of the appointees by examination, and that no such procedure was followed and no such determination made. The case went to the Court of Appeals where a unanimous decision sustained the Commission. The Court concluded its opinion as follows: "We find no reasonable basis for a belief that in all the positions, present or future, that exist or may exist in connection with this bureau, there can be no place for a test of efficiency by any form of examination, even as a supplement to tests more intimate and personal. If the Legislature may so declare as to this bureau for no better reason than the need of secrecy, it may say as much of the employees of the district attorneys in every county in the State. By a slight and yet inevitable extension, it may make a like declaration as to other bureaus and departments. No such sweeping exemption within the limits of the administrative departments of the government has ever been proclaimed since the Constitution set bounds to the discretion of the Legislature in the formation of the civil service."

The New York constitution provides that appointments shall be made as far as practicable as the result of competitive tests.

New York courts have held that the legislature may not pick out an individual and pass special legislation for his benefit in contravention of the general provisions of the constitution. (*Brown v. Craig, Kelliher v. Quin and Brady. Barlow v. Craig & Grosback.*) They have also held that the Health Department may not by crying "contagious epidemics" justify the employment of emergency employees without compliance with the requirements of competition under the civil service clause of the constitution. (*Barlow v. Craig.*)

There is now pending before the Court of Appeals in New York State a case to test the jurisdiction of the Municipal Civil Service Commission over promotions of employees in the Department of Education (*Ryan v. Municipal Civil Service Commission*) decided in favor of the Commission in the Appellate Division of the Supreme Court.

In Colorado there has been a test of the constitutional amendment concerning the power of the Governor to remove members of the State Commission, the Supreme Court of the State holding that the members of the Civil Service Commission can be removed only by impeachment (*Hicks v. Roberts*).

National Civil Service Reform League.—During 1925 the League sponsored legislation to empower the President to place in the classified civil service all positions now exempt by statute; to provide for the appointment of all postmasters and rural carriers through the merit system; to place prohibition agents in the classified civil service; and to abolish the Federal Personnel Classification Board and to transfer its functions to the United States Civil Service Commission in order that but one agency shall deal with the technical problems of personnel. It protested against a bill to create a commissioned medical personnel in the Veterans' Bureau, thus exempting a large group of civil employees from the classified civil service, on the ground that experience has demonstrated that competent physicians can be obtained through competitive examination. The continuance of an executive order issued by President Harding providing for the appointment of one out of the first three names on eligible lists for the appointment of presidential postmaster was condemned. An investigation by the League of the operation of this order had revealed the fact that it invited political influences to dictate appointments of postmasters. Congress was urged by the League to enact a bill placing all postmasters under the merit system, and the President was urged to require the selection of the first person on the eligible list. An investigation of the appointments of deputy collectors of internal revenue indicated that the number of such positions was being increased and that they were being used as political patronage. Legislation empowering the President to place these positions in the classified service is supported by the League.

Through its field division the League endeavors to secure the adoption of civil service laws in the various states and cities. It issues from time to time pamphlets on the various fields of its investigation. Recent publications include: *The Story of the Merit System; Roosevelt and the Spoilsmen; Who Inspects Our Food? Good Government* is the official organ of the movement. The 45th Annual Meeting was held in December, 1925.

Merit System in Pennsylvania.—The Pennsylvania Civil Service Association issued during the year a comprehensive statement on the result of the two year trial of a personnel system for the state government placed in the hands of an executive board created by the Administrative Code of 1923, all appointed by the Governor. The Association finds that these provisions have proved to be inadequate, there being no personnel agency created by the act and the powers vested in the Governor having been inadequately safeguarded. The Association finds, however, that even under the inadequate provisions of the law "marked progress has been made in the work of classification of state positions." The results show a decrease in expenditures for wages and salaries of $1,382,042. It further finds that an employment retirement system has been established.

In criticism of the executive board, the Association finds that it has not carried the classification of positions in all the state departments to completion. "Loyalty to a particular administration, instead of loyalty to the state as an employer, has been emphasized in the application blank which new appointees are required to fill out," says the Association, which stipulates two specific steps which should be taken to remedy the present condition:

1. To establish a State Personnel Commission and give it broad powers over personnel matters, as provided in the draft of the State Personnel Act of 1925 (a state civil service bill sponsored by the Pennsylvania Association).
2. To give this Commission sufficient funds to employ a technically trained personnel staff equipped to handle expeditiously the varied employment problems of the state.

Conditions of Municipal Employment in Chicago.—Mayor William E. Dever of Chicago asked the City Club of that city to investigate conditions of employment in the municipal service. That Club in turn asked Professor Leonard D. White of the University of Chicago to undertake a study to stimulate a greater degree of cooperation and voluntary effort among the employees of the city especially in the classified service. This study was made possible by aid of research funds provided by the University through the Committee on Local Community Research. The formal report which is entitled "A Study in Morale" was submitted to the Council on June 10, 1925. As a preliminary of the systematic survey of all conditions of city employment, Prof. White and his associates gathered data on the question why men and women are anxious to serve the City. An infinite variety of reasons was given by competitors in entrance examinations, but "the outstanding reasons seemed to be a desire for a sense of security and a belief that on the whole the pay was adequate."

In outlining the sources of dissatisfaction on the part of employees it was pointed out that lack of recognition for good work is the chief reason for dissatisfaction. Many departments of the City government are being conducted in a praiseworthy manner, but almost no recognition is given either to the departments or to the individuals who are responsible for this.

Other causes of dissatisfaction listed and developed briefly are: "Gradual loss of initiative, maladjustment of salaries — both as to classes and persons, abuses of 'waivers,' delays in posting eligible lists, uneven discipline, and, finally, political interference with the administrative side of the government."

In developing the practice of waiving appointment, Dr. White said: "A promotion examination is held and an eligible list posted. A certain person is 125, let us say, on the list. Number 125 persuades 124, and so on up the list, to waive the privilege of getting promotion. We ran across cases where more than 100 people, after passing an examination, had said 'We don't want the chance to be promoted.'" He said that the amount of pressure brought to secure waivers was not known, but that the practice of waiving had grown to serious proportions.

As to the recommendations of a constructive character, the first was for a system of recognition of the high grade work many men and women and departments are doing. This would be in part personal, like the bonuses in the Police Department; in part departmental. It was suggested to the Mayor that he set up an annual competition between departments, with a cup for a trophy. Next it was recommended that the Mayor establish the business organization of the city, similar to the business organization of the United States Government. Its purpose would be to put the Mayor into immediate touch with some 200 heads of divisions and bureaus who are actually responsible for carrying on most of the work. On the salary problem, which urgently needs consideration, it was recommended that it be turned over to a special body, to include representation of the employees themselves. Other recommendations were for the establishment of a joint council of representatives of the employees of the department heads, the creation of an Institute of Municipal Administration, a reclassification of the service and the adoption of a strong constructive program by the Civil Service Commission.

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Professor at Harvard University

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MEMBERS OF THE SENATE

Compiled from the Congressional Directory, Year 1925

Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italic;* Farmer-Labor in ROMAN CAPS.

ALABAMA

Oscar W. Underwood (1915).
J. THOMAS HEFLIN (1920).

ARIZONA

Henry F. Ashurst (1912).
Ralph H. Cameron (1921).

ARKANSAS

Joseph T. Robinson (1913).
T. H. Caraway (1921).

CALIFORNIA

Hiram W. Johnson (1917).
Samuel N. Shortridge (1921).

COLORADO

Lawrence C. Phipps (1919).
Rice W. Means (1924).

CONNECTICUT

George P. McLean (1911).
Hiram Bingham (1924).

DELAWARE

Thomas F. Bayard (1922).
Coleman du Pont (1925).

FLORIDA

Duncan U. Fletcher (1909).
Park Trammell (1917).

GEORGIA

William J. Harris (1919).
Walter F. George (1922).

IDAHO

William E. Borah (1907).
Frank R. Gooding (1921).

ILLINOIS

William B. McKinley (1921)
Charles S. Deneen (1925).

INDIANA

James E. Watson (1916).
Arthur R. Robinson (1925)

IOWA

Albert B. Cummins (1908).
Smith W. Brookhart (1922).

KANSAS

Charles H. Curtis (1915).
Arthur Capper (1919).

KENTUCKY

Richard P. Ernst (1921).
Frederic M. Sackett (1925).

LOUISIANA

Joseph E. Ransdell (1913).
Edwin S. Broussard (1921).

MAINE

Bert M. Fernald (1916).
Frederick Hale (1917).

MARYLAND

O. E. Weller (1921).
William Cabell Bruce (1923).

MASSACHUSETTS

William M. Butler (1924).
Frederick H. Gillett (1925).

MICHIGAN

James Couzens (1922).
Woodbridge N. Ferris (1923).

MINNESOTA

HENRIK SHIPSTEAD (1923).
Thomas D. Schall (1925).

MISSISSIPPI

Pat Harrison (1919).
Hubert D. Stephens (1923).

MISSOURI

James A. Reed (1911).
George H. Williams (1925).

MONTANA

Thomas J. Walsh (1913).
Burton K. Wheeler (1923).

NEBRASKA

George W. Norris (1913).
Robert B. Howell (1923).

NEVADA

Key Pittman (1913).
Tasker L. Oddie (1921).

NEW HAMPSHIRE

George H. Moses (1918).
Henry W. Keyes (1919).

NEW JERSEY

Walter E. Edge (1919).
Edward I. Edwards (1923).

NEW MEXICO

Andrieus A. Jones (1917).
Sam G. Bratton (1925).

NEW YORK

James W. Wadsworth, Jr. (1915).
Royal S. Copeland (1923).

NORTH CAROLINA

Furnifold M. Simmons (1901).
Lee S. Overman (1903).

NORTH DAKOTA

Lynn F. Frazier (1923).
Gerald P. Nye (1925).

OHIO

Frank B. Willis (1921).
Simeon D. Fess (1923).

OKLAHOMA

John W. Harreld (1921).
W. B. Pine (1925).

OREGON

Charles L. McNary (1918).
Robert Nelson Stanfield (1921).

PENNSYLVANIA

George Wharton Pepper (1922).
David A. Reed (1922).

RHODE ISLAND

Peter G. Gerry (1917).
Jesse H. Metcalf (1924).

SOUTH CAROLINA

Ellison D. Smith (1909).
Coleman L. Blease (1925).

SOUTH DAKOTA

Peter Norbeck (1921).
W. H. McMaster (1925).

TENNESSEE

Kenneth McKellar (1917).
Lawrence D. Tyson (1925).

TEXAS

Morris Sheppard (1913).
Earle B. Mayfield (1923).

UTAH

Reed Smoot (1903).
William H. King (1917).

VERMONT

Frank L. Greene (1923).
Porter H. Dale (1923).

VIRGINIA

Claude A. Swanson (1910).
Carter Glass (1920).

WASHINGTON

Wesley L. Jones (1909).
C. C. Dill (1923).

WEST VIRGINIA

M. M. Neely (1923).
Guy D. Goff (1925).

WISCONSIN

Irvine L. Lenroot (1918).
Robert M. La Follette, Jr. (1925).

WYOMING

Francis E. Warren (1895).
John B. Kendrick (1917).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

Compiled from the Congressional Directory, Year 1925

Republicans in Roman; Democrats in *Italics;* Independent in SMALL CAPS; Farmer-Labor in ROMAN CAPS; Socialist in *ITALIC CAPS.*
Dates show the beginning of service in the House.

ALABAMA

1. *John McDuffie* (1919).
2. *Lister Hill* (1923).
3. *Henry B. Steagall* (1915).
4. *Lamar Jeffers* (1921).
5. *William B. Bowling* (1920).
6. *William B. Oliver* (1915).
7. *Miles C. Allgood* (1923).
8. *Edward B. Almon* (1915).
9. *George Huddleston* (1915).
10. *William B. Bankhead* (1917).

ARIZONA

At large—*Carl Hayden* (1912).

ARKANSAS

1. *William J. Driver* (1921)
2. *William A. Oldfield* (1909)

3. *John N. Tillman* (1915).
4. *Otis Wingo* (1913).
5. *Heartsill Ragon* (1923).
6. *James B. Reed* (1923).
7. *Tilman B. Parks* (1921).

CALIFORNIA

1. *Clarence F. Lea* (1917).
2. *John E. Raker* (1911).
3. Charles F. Curry (1913)
4. Florence P. Kahn (1925).
5. Lawrence J. Flaherty (1925).
6. Albert E. Carter (1925).
7. Henry E. Barbour (1919).
8. Arthur M. Free (1921).
9. Walter F. Lineberger (1921).
10. John D. Fredericks (1923).
11. Philip D. Swing (1921).

COLORADO

1. William N. Vaile (1919).
2. Charles B. Timberlake (1915).
3. Guy U. Hardy (1919).
4. *Edward T. Taylor* (1909).

CONNECTICUT

1. E. Hart Fenn (1921).
2. Richard P. Freeman (1915).
3. John Q. Tilson (1915).
4. Schuyler Merritt (1917).
5. James P. Glynn (1925).

DELAWARE

At large—Robert G. Houston (1925).

FLORIDA

1. *Herbert J. Drane* (1917).
2. *R. A. Green* (1925).
3. *John H. Smithwick* (1919).
4. *William J. Sears* (1915).

GEORGIA

1. *Charles G. Edwards* (1925).
2. *E. E. Cox* (1925).
3. *Charles R. Crisp* (1913).
4. *William C. Wright* (1918).
5. *William D. Upshaw* (1919).
6. *Samuel Rutherford* (1925).
7. *Gordon Lee* (1905).
8. *Charles H. Brand* (1917).
9. *Thomas M. Bell* (1905).
10. *Carl Vinson* (1914).
11. *William C. Lankford* (1919).
12. *William W. Larsen* (1917).

IDAHO

1. Burton L. French (1917).
2. Addison T. Smith (1913).

ILLINOIS

At large—Richard Yates (1919).
Henry R. Rathbone (1923).

1. Martin B. Madden (1905).
2. Morton D. Hull (1923).
3. Elliott W. Sproul (1921)
4. *Thomas A. Doyle* (1923).
5. *Adolph J. Sabath* (1907).
6. John J. Gorman (1925).
7. M. Alfred Michaelson (1921).
8. *Stanley H. Kunz* (1921).
9. Fred A. Britten (1913).
10. Carl R. Chindblom (1919).
11. Frank R. Reid (1923).
12. Charles E. Fuller (1915).
13. William R. Johnson (1925).
14. John C. Allen (1925).
15. Edward J. King (1915).
16. William E. Hull (1923).
17. Frank H. Funk (1921).
18. William P. Holaday (1923).
19. Charles Adkins (1925).
20. *Henry T. Rainey* (1923).
21. Loren E. Wheeler (1925).
22. Ed M. Irwin (1925).
23. *William W. Arnold* (1923).
24. Thomas S. Williams (1915).
25. Edward E. Denison (1915).

INDIANA

1. Harry E. Rowbottom (1925).
2. *Arthur H. Greenwood* (1923).
3. *Frank Gardner* (1923).
4. *Harry C. Canfield* (1923).
5. Noble J. Johnson (1925).
6. Richard N. Elliott (1917).
7. Ralph E. Updike, Sr. (1925).
8. Albert H. Vestal (1917).
9. Fred S. Purnell (1917).
10. William R. Wood (1915).
11. Albert R. Hall (1925).
12. David Hogg (1925).
13. Andrew J. Hickey (1919).

IOWA

1. William F. Kopp (1921).
2. F. D. Letts (1925).
3. T. J. B. Robinson (1923).
4. Gilbert N. Haugen (1899).
5. Cyrenus Cole (1921).
6. C. William Ramseyer (1915).
7. Cassius C. Dowell (1915).
8. Lloyd Thurston (1925).
9. William R. Green (1911).
10. L. J. Dickinson (1919).
11. William D. Boies (1919).

KANSAS

1. Daniel R. Anthony, Jr. (1907).
2. *Chauncey B. Little* (1925).
3. W. H. Sproul (1923).
4. Homer Hoch (1919).
5. James G. Strong (1919).
6. Hays B. White (1919).
7. J. N. Tincher (1919).
8. *William A. Ayres* (1923).

KENTUCKY

1. *Alben W. Barkley* (1913).
2. *David H. Kincheloe* (1915).
3. *John W. Moore* (1925).
4. *Ben Johnson* (1907).
5. Maurice H. Thatcher (1923).
6. *Arthur B. Rouse* (1911).
7. *Virgil Chapman* (1925).
8. *Ralph Gilbert* (1921).
9. *Fred M. Vinson* (1924).
10. John W. Langley (1907).
11. John M. Robsion (1919).

LOUISIANA

1. *James O'Connor* (1919).
2. *J. Zach Spearing* (1924).
3. *Whitmell P. Martin* (1915).
4. *John N. Sandlin* (1921).
5. *Riley J. Wilson* (1915).
6. *Bolivar E. Kemp* (1925).
7. *Ladislas Lazaro* (1913).
8. *James B. Aswell* (1913).

MAINE

1. Carroll L. Beedy (1921).
2. Wallace H. White, Jr. (1917).
3. John E. Nelson (1922).
4. Ira G. Hersey (1917).

MARYLAND

1. *T. Alan Goldsborough* (1921).
2. *Millard E. Tydings* (1923).
3. John Philip Hill (1921).
4. *J. Charles Linthicum* (1911).
5. *Stephen W. Gambrill* (1924).
6. Frederick N. Zihlman (1917).

MASSACHUSETTS

1. Allen T. Treadway (1913).
2. Henry W. Bowles (1925).
3. Frank H. Foss (1925).
4. George R. Stobbs (1925).
5. Edith Nourse Rogers (1925)
6. A. Piatt Andrew (1921).
7. *William P. Connerty, Jr.* (1923).
8. Harry I. Thayer (1925).
9. Charles L. Underhill (1921).
10. *John J. Douglass* (1925).
11. George Holden Tinkham (1915).
12. *James A. Gallivan* (1914).
13. Robert Luce (1919).
14. Louis A. Frothingham (1921).
15. Joseph W. Martin, Jr. (1925).
16. Charles L. Gifford (1922).

MICHIGAN

1. John B. Sosnowski (1925).
2. Earl C. Michener (1919).
3. Joseph L. Hooper (1925).
4. John C. Ketcham (1921).
5. Carl E. Mapes (1913).
6. Grant M. Hudson (1923).
7. Louis C. Cramton (1913).
8. Bird J. Vincent (1923).
9. James C. McLaughlin (1907).
10. Roy O. Woodruff (1921).
11. Frank D. Scott (1915).
12. W. Frank James (1915).
13. Clarence J. McLeod (1923).

MINNESOTA

1. Allen J. Furlow (1925).
2. Frank Clague (1921).
3. August H. Andresen (1925).
4. Oscar E. Keller (1919).
5. Walter H. Newton (1919)
6. Harold Knutson (1917).
7. O. J. KVALE (1923)
8. WILLIAM L. CARSS (1925).
9. KNUD WEFALD (1923).
10. Godfrey G. Goodwin (1925).

MISSISSIPPI

1. *John E. Rankin* (1921).
2. *B. G. Lowrey* (1921).
3. *W. M. Whittington* (1925)
4. *Jeff Busby* (1923).
5. *Ross A. Collins* (1921).
6. *T. Webber Wilson* (1923).
7. *Percy E. Quin* (1913).
8. *James W. Collier* (1909).

MISSOURI

1. *M. A. Romjue* (1923).
2. *Ralph F. Lozier* (1923).
3. *Jacob L. Milligan* (1923).
4. Charles L. Faust (1921).
5. Edgar C. Ellis (1925).
6. *Clement C. Dickinson* (1923).
7. *Samuel C. Major* (1923).
8. *William L. Nelson* (1925).
9. *Clarence Cannon* (1923).
10. Cleveland A. Newton (1919).
11. *Harry B. Hawes* (1921).
12. Leonidas C. Dyer (1917).
13. Charles E. Kiefner (1925).
14. Ralph E. Bailey (1925).
15. Joe J. Manlove (1923).
16. *Thomas L. Rubey* (1923).

MONTANA

1. *John M. Evans* (1923).
2. Scott Leavitt (1923).

NEBRASKA

1. *John H. Morehead* (1923).
2. Willis G. Sears (1923).
3. *Edgar Howard* (1923).
4. Melvin O. McLaughlin (1919).
5. *A. C. Shallenberger* (1923).
6. Robert G. Simmons (1923).

NEVADA

At large—Samuel S. Arentz (1925).

NEW HAMPSHIRE

1. Fletcher Hale (1925).
2. Edward H. Wason (1915).

NEW JERSEY

1. Francis F. Patterson, Jr. (1920).
2. Isaac Bacharach (1915).
3. Stewart H. Appleby (1925).
4. Charles A. Eaton (1925).
5. Ernest R. Ackerman (1919).
6. Randolph Perkins (1921).
7. George N. Seger (1923).
8. Herbert W. Taylor (1925)
9. Franklin W. Fort (1925).
10. Frederick R. Lehlbach (1915).
11. *Oscar L. Auf der Heide* (1925).
12. *Mary T. Norton* (1925).

NEW MEXICO

At large—*John Morrow* (1923).

NEW YORK

1. Robert L. Bacon (1923).
2. *John J. Kindred* (1921).
3. *George W. Lindsay* (1923).
4. *Thomas H. Cullen* (1919).
5. *Loring M. Black, Jr.* (1923).
6. *Andrew L. Somers* (1925).
7. *John F. Quayle* (1923).
8. *William E. Cleary* (1923).
9. *David J. O'Connell* (1923).
10. *Emanuel Celler* (1923).
11. *Anning S. Prall* (1923).
12. *Samuel Dickstein* (1923).
13. *Christopher D. Sullivan* (1917).
14. Nathan D. Perlman (1920).
15. *John J. Boylan* (1923).
16. *John J. O'Connor* (1923).
17. Ogden L. Mills (1921).
18. *John F. Carew* (1913).
19. *Sol Bloom* (1923).
20. *FIORELLO H. LAGUARDIA* (1923).
21. *Royal H. Weller* (1923).
22. *Anthony J. Griffin* (1917).
23. *Frank Oliver* (1923).
24. Benjamin L. Fairchild (1923).
25. J. Mayhew Wainwright (1923).
26. Hamilton Fish, Jr. (1920).
27. Harcourt J. Pratt (1925).
28. *Parker Corning* (1923).
29. James S. Parker (1913).
30. Frank Crowther (1919).
31. Bertrand H. Snell (1915).
32. Thaddeus C. Sweet (1923).
33. Frederick M. Davenport (1925).
34. Harold S. Tolley (1925)
35. Walter W. Magee (1915).
36. John Taber (1923).
37. Gale H. Stalker (1923).
38. *Meyer Jacobstein* (1923).
39. Archie D. Sanders (1917).
40. S. Wallace Dempsey (1915).
41. Clarence MacGregor (1919).
42. *James M. Mead* (1919).
43. Daniel A. Reed (1919).

NORTH CAROLINA

1. *Lindsay Warren* (1925).
2. *John H. Kerr* (1923).
3. *Charles L. Abernethy* (1922).
4. *Edward W. Pou* (1901).
5. *Charles M. Stedman* (1911).
6. *Homer L. Lyon* (1921).
7. *William C. Hammer* (1921).
8. *Robert L. Doughton* (1911).
9. *A. L. Bulwinkle* (1921).
10. *Zebulon Weaver* (1919).

NORTH DAKOTA

1. Olger B. Burtness (1921).
2. Thomas Hall (1924).
3. James H. Sinclair (1919).

OHIO

1. Nicholas Longworth (1915).
2. A. E. B. Stephens (1919).
3. Roy G. Fitzgerald (1921).
4. W. T. Fitzgerald (1925).
5. Charles J. Thompson (1919).
6. Charles C. Kearns (1915).
7. Charles Brand (1923).
8. *Brooks Fletcher* (1925).
9. W. W. Chalmers (1925).
10. Thomas A. Jenkins (1925).
11. *Mell G. Underwood* (1923).
12. John C. Speaks (1921).
13. James T. Begg (1919).
14. *Martin L. Davey* (1923).
15. C. Ellis Moore (1919).
16. *John McSweeney* (1923).
17. W. M. Morgan (1921).
18. Frank Murphy (1919).
19. John G. Cooper (1915).
20. *Charles A. Mooney* (1923).
21. *Robert Crosser* (1923).
22. Theodore E. Burton (1921).

OKLAHOMA

1. S. J. Montgomery (1925).
2. *William W. Hastings* (1923).
3. *Charles D. Carter* (1907).
4. *Tom D. McKeown* (1923).
5. *F. B. Swank* (1921).
6. *Elmer Thomas* (1923).
7. *James V. McClintic* (1915).
8. M. C. Garber (1923).

OREGON

1. Willis C. Hawley (1907).
2. Nicholas J. Sinnott (1913).
3. M. E. Crumpacker (1925).

PENNSYLVANIA

1. William S. Vare (1923).
2. George S. Graham (1913).
3. Harry C. Ransley (1920).
4. Benjamin M. Golder (1925).
5. James J. Connolly (1921).
6. George A. Welsh (1923).
7. George P. Darrow (1915).
8. Thomas S. Butler (1897).
9. Henry W. Watson (1915).
10. W. W. Griest (1909).
11. Laurence H. Watres (1923).

12. Edmund N. Carpenter (1925).
13. George F. Brumm (1923).
14. Charles J. Esterly (1925)
15. Louis T. McFadden (1915).
16. Edgar R. Kiess (1913).
17. Frederick W. Magrady (1925).
18. Edward M. Beers (1923)
19. Joshua W. Swartz (1925).
20. Anderson H. Walters (1925)
21. J. Banks Kurtz (1923).
22. Franklin Menges (1925).
23. William I. Swoope (1923)
24. Samuel A. Kendall (1919).
25. Henry W. Temple (1915).
26. Thomas W. Phillips, Jr. (1923).
27. Nathan L. Strong (1917).
28. Harris J. Bixler (1921).
29. Milton W. Shreve (1919)
30. William R. Coyle (1925).
31. Adam M. Wyant (1921).
32. Stephen G. Porter (1911).
33. Clyde Kelly (1917).
34. John M. Morin (1913).
35. James M. Magee (1923).
36. Guy E. Campbell (1917).

RHODE ISLAND

1. Clark Burdick (1919).
2. Richard S. Aldrich (1923).
3. *Jeremiah E. O'Connell* (1923).

SOUTH CAROLINA

1. *Thomas S. McMillan* (1925).
2. *Butler B. Hare* (1925).
3. *Fred H. Dominick* (1917).
4. *John J. McSwain* (1921).
5. *William F. Stevenson* (1917).
6. *Allard H. Gasque* (1923).
7. *Hampton P. Fulmer* (1921).

SOUTH DAKOTA

1. Charles A. Christopherson (1919).
2. Royal C. Johnson (1915).
3. William Williamson (1921).

TENNESSEE

1. B. Carroll Reece (1921).
2. J. Will Taylor (1919).
3. *S. D. McReynolds* (1923).
4. *Cordell Hull* (1923).
5. *Edwin L. Davis* (1919).
6. *Joseph W. Byrns* (1909).
7. *Edward E. Eslick* (1925).
8. *Gordon Browning* (1923).
9. *Finis J. Garrett* (1905).
10. *Hubert F. Fisher* (1917).

TEXAS

1. *Eugene Black* (1915).
2. *John C. Box* (1919).
3. *Morgan G. Sanders* (1921).
4. *Sam Rayburn* (1913).
5. *Hatton W. Sumners* (1913).
6. *Luther A. Johnson* (1923).
7. *Clay Stone Briggs* (1919).
8. *Daniel E. Garrett* (1921).
9. *Joseph J. Mansfield* (1917).
10. *James P. Buchanan* (1913).
11. *Tom Connally* (1917).
12. *Fritz G. Lanham* (1919).
13. *Guinn Williams* (1922).
14. Harry M. Wurzbach (1921).
15. *John N. Garner* (1903).
16. *C. B. Hudspeth* (1919).
17. *Thomas L. Blanton* (1917).
18. *Marvin Jones* (1917).

UTAH

1. Don B. Colton (1921).
2. Elmer O. Leatherwood (1921).

VERMONT

1. Elbert S. Brigham (1925).
2. Ernest W. Gibson (1923).

VIRGINIA

1. *Schuyler Otis Bland* (1918).
2. *Joseph T. Deal* (1921).
3. *Andrew J. Montague* (1913).
4. *Patrick H. Drewry* (1920)
5. *Joseph Whitehead* (1925).
6. *Clifton A. Woodrum* (1923).
7. *Thomas W. Harrison* (1923).
8. *R. Walton Moore* (1919).
9. *George C. Peery* (1923).
10. *Henry St. George Tucker* (1922).

WASHINGTON

1. John F. Miller (1917).
2. Lindley H. Hadley (1915).
3. Albert Johnson (1913).
4. John W. Summers (1919).
5. *Samuel B. Hill* (1923).

WEST VIRGINIA

1. Carl G. Bachmann (1925).
2. Frank L. Bowman (1925).
3. John M. Wolverton (1925).
4. Harry C. Woodyard (1925).
5. James French Strother (1925).
6. *J. Alfred Taylor* (1923).

WISCONSIN

1. Henry Allen Cooper (1921).
2. Edward Voigt (1917).
3. John M. Nelson (1921).
4. John C. Schafer (1923).
5. *VICTOR L. BERGER* (1923).
6. Florian Lampert (1918).
7. J. D. Beck (1921).
8. Edward E. Browne (1913).
9. George J. Schneider (1923).
10. James A. Frear (1913).
11. Hubert H. Peavey (1923).

WYOMING

At large—Charles E. Winter (1923).

ALASKA

Dan A. Sutherland (1921).

HAWAII

William P. Jarrett (1923).

PHILIPPINES

Isauro Gabaldon (1920).
Pedro Guevara (1923).

PORTO RICO

Felix Cordova Davila (1917).

CLASSIFICATION

SENATE	
Republicans	56
Democrats	39
Farmer-Labor	1
Total	96

HOUSE	
Republicans	247
Democrats	183
Independent	1
Farmer-Labor	2
Socialist	2
Total	435

DIVISION V

STATE AND COUNTY GOVERNMENT

NATIONAL AND INTERSTATE RELATIONS

By J. M. Mathews
Professor at the University of Illinois

The year 1925 was one of unusual activity in state governments. This was due in part to the fact that the great majority of the state legislatures meet in the odd-numbered years. Fundamentally, however, it was due to the renewed attention to, and interest in, state and local governmental affairs following the removal of the strain due to war and the disturbed state of our foreign relations.

Child Labor Amendment Controversy.—After two unsuccessful attempts to reach the child labor evil through legislation, Congress, in June, 1924, submitted to the states a proposed amendment to the Constitution of the United States, giving Congress power to "limit, regulate and prohibit the labor of persons under eighteen years of age." In an advisory referendum held in Massachusetts the following November the proposal was overwhelmingly defeated. At the legislative sessions held in 1925, a sufficient number of states rejected the proposed amendment seemingly to assure its defeat. It is of course true, however, that a change in public opinion might still save the proposal from final defeat, since a state which has rejected the amendment may later reverse its action.

Protest of Governors.—The opposition to the child labor amendment is ostensibly based largely on the ground that it constitutes an unwelcome encroachment upon the traditional sphere of state rights. Opposition to the further extension of national power at the expense of the states was especially manifest at the seventeenth annual Conference of State Governors which met at Poland Springs, Maine, at the end of June. The policy of national aid to the states on the fifty-fifty basis was denounced in so far as it enabled the National Government to exercise indirect control over matters which constitutionally belong within the sphere of state power. This policy has developed to such an extent that, for the fiscal year ending June 30, 1926, Congress appropriated approximately $130,000,000 for aid to the states in reference to such matters as highways, education and the National Guard.

The governors at Poland Springs were aroused especially on account of certain utterances which President Coolidge had recently made on the subject of National and state relations. In his Memorial Day address at Arlington he asserted that if the states fail to discharge obvious duties, the National Government would have to step in. A few weeks later he publicly condemned the laws under which the National Government distributes contributions to the states and urged the people to "realize the necessity of State assumption of State responsibility."

Basis of Objection.—While President Coolidge's opposition to so-called National aid to the states was probably due largely to the fact that it interferes with his plans for cutting down National expenditures, the opposition of the Governors to the practice was due to the feeling that it constitutes a subtle encroachment on state prerogatives. It was pointed out that National contributions to the states on the fifty-fifty basis did not really constitute National aid to the states since the National Contribution was paid for by the citizens of the various states in the form of National taxes. The opposition of Iowa to the system went so far that she announced her intention to refuse to receive further National aid in her road-building program.

Most states, however, feel that, as long as National funds are being distributed, they might as well come in for their share. Some states even go so far as to apply to the National Government for more aid than it is willing to grant. Thus, Illinois made an appeal for further National aid in her war on cattle tuberculosis, but without apparent success. Even at the Governors' Conference, some governors were willing to make exception to their opposition to the géneral policy of National aid in respect to certain specific phases; for example, National appropriations for agriculture and good roads. The opposition to National aid seems to come principally from the wealthier Eastern states which feel that their contribution in National taxes is greater than the benefit they receive from such aid, while the system works out for the financial profit of the less thickly populated states of the West and South. Governor Ritchie of Maryland has probably been the most outspoken opponent of National aid. He delivered during the year a number of public addresses on the subject in various parts of the country.

At the Convention of State Controllers and Auditors held at Miami, Fla., in November, Controller Murphy, of New York, urged that a national State Rights Conference be called to adopt protective measures against further inroads of the National Government on the powers of the states. He deprecated the widespread policy of "letting Washington do it," and pointed out that New York, Illinois, Pennsylvania, California, Massachusetts, and a few other of the large states foot most of the bills.

Inheritance Taxes.—In addition to the policy of National aid, another way in which it is felt that the National Government is encroaching on the proper sphere of the states is through the levying of National inheritance taxes. The National Government has resorted to this form of taxation only in war emergencies and has usually abandoned it promptly after the emergency passed. Since all rights of succession to property are gained under state laws, it is felt that in time of peace the states should have exclusive control of estate taxes as a source of revenue. A concerted attempt to bring pressure to bear on Congress to this end was made in October when the representatives of seventeen states, including six governors, appeared before the Ways and Means Committee and urged that the National Government should retire from the inheritance tax field. Their position was supported by Secretary of the Treasury Mellon, who, in a statement to the Committee, said: "There is no logical basis for the Federal Government collecting this tax. . . . The states need every source of revenue available. In the majority of states, the Federal tax directly decreases the property which the state can tax."

The National inheritance tax was also opposed by the National Committee on Inheritance Taxation which recommended that it should be abolished at the end of six years. Meanwhile, it recommended that the 25 per cent. credit provision of the present law should be extended so as to allow a credit of all inheritance taxes paid to the several states up to 80 per cent. of the National tax. It was recognized, however, that inheritance taxes should be substantially uniform throughout the United States; and as long as this is not the case and some states, such as Florida, even prohibit inheritance taxes in their constitutions, it would hardly be equitable to abandon the National inheritance tax altogether.

Regulation of Interstate Commerce.—Another way in which the National Government is gradually extending its control over the sphere heretofore belonging to the states is through its power to regulate interstate commerce. This power has been held to be sufficient to enable Congress to authorize the Interstate Commerce Commission to set aside orders of state commissions which, while nominally regulating intrastate commerce only, really discriminate against or place an undue burden upon, interstate commerce. As illustrating the extent of National power, a conflict arose in October between the Interstate Commerce Commission and the Illinois Commerce Commission, regarding suburban fares on the Chicago and Northwestern Railroad. In 1920 the Interstate Commission had ordered a 20 per cent. increase in Chicago suburban fares on the Northwestern to points outside of Illinois. In October, 1925, the same commission granted the same increase to points within the state, on the ground that not to do so would be to discriminate against commuters living outside of Illinois. The Illinois Commerce Commission thereupon issued an order suspending the increase on intrastate fares granted by the Interstate Commission. The Railroad then applied to the Federal courts to restrain the Illinois Commission from interfering. This application was granted and an injunction was issued by the Federal court prohibiting the Illinois Commission from interfering in the collection of the increased rates charged passengers to points within the state. The injunction was denounced by Attorney-General Carlstrom of Illinois as a far-reaching and arbitrary intervention in state matters, but is nevertheless based on decisions made by the Supreme Court of the United States.

The extension of National control over new forms of interstate commerce came up for discussion in October at the thirty-seventh annual convention of the National Association of Railroad and Utilities Commissioners held at Washington, D. C. Recent decisions of the Supreme Court of the United States holding that the states have no authority over interstate bus and truck lines were thought to foreshadow the ultimate passage by Congress of legislation regulating interstate motor traffic. The convention declined to go on record as opposed to the enactment of such legislation, although some delegates were of opinion that such legislation would result in the state commissions being deprived of any effectual power to regulate intrastate motor traffic.

Superpower Possibilities.—The recent extension of superpower systems across state boundaries has led to some expression of the need of the extension of National control over public utilities. In October, however, Secretary of Commerce Hoover in an address before the Thirty-seventh annual convention of the National Association of Railroad and Utilities Commissioners at Washington uttered a note of warning against such extension, claiming that the need for it had been greatly exaggerated. "If," he said, "we are to stretch the interstate commerce provision in the Constitution to regulate all those things that pass state lines, we shall automatically absorb to Federal authority most of the Government that lies within state lines, because our economic life has become so enmeshed that there is no longer that easy conception of our forefathers of what constituted interstate commerce. If we do not resist this extension, what becomes of that fundamental freedom and independence that can arise only from self-government?"

Chicago Lake Water Question.—Several of the states bordering on the Great Lakes united with the National Government in opposing the practice of the Chicago Sanitary District in taking 10,000 cubic feet of water per second from Lake Michigan for purposes of drainage and sanitation. The undue lowering of the waters of the Lakes also had the possibility of bringing on international complications. In January the Supreme Court of the United States held that the state of Illinois could not, by withdrawal of water from the Great Lakes, affect their level without the consent of Congress, and issued a decree limiting the amount to be taken to 4,167 cubic feet per second. It further held that the United States, in the exercise of its power to control navigable waters, regulate interstate commerce and maintain its treaty obligations, might enjoin the withdrawal of water from Lake Michigan in excess of the amount allowed by the Secretary of War. (Sanitary District of Chicago v. United States, 45 Sup. Ct. Rep., 176.)

Interstate Relations.—Various conferences of state officials for the consideration of problems of common interest have been held during the year. These include the annual conferences of governors, of state controllers and auditors, and of railroad and public utilities commissioners. In October, a Midwest governors' conference was held at Sioux Falls, South Dakota, at which the governors organized and adopted resolutions expressing their attitude on such questions as agricultural relief, waterways, and reduction of state expenditures. In November, a conference of representative men from the six New England States was held at Worcester, Massachusetts, at which the New England Council was formed for the purpose of promoting the economic and commercial interests of that section of the country.

On January 12, 1925, Governor Hunt of Arizona, in his message to the legislature, reiterated his opposition to the Colorado River Compact, sometimes known as the "Seven-State Irrigation Treaty" which was negotiated in 1922 among the seven states having water rights in the Colorado River, and which undertook to allocate such rights. Six of the seven states have ratified the agreement, which was drawn up under the supervision of Secretary of Commerce Hoover. The situation illustrates some of the difficulties of state cooperation in accomplishing common purposes.

Another illustration of the same sort is found in the controversy between New Jersey and Pennsylvania as to whether the new interstate bridge over the Delaware at Camden should be free or toll. The people of New Jersey authorized the bridge bonds at an election in which the ballots provided that the net revenues of the bridge should be devoted to payment of the bonds. On the other hand, Pennsylvania insisted that it should be a free bridge, and, in November, she secured permission from the Supreme Court of the United States to bring suit against New Jersey to enforce the interstate agreement for the construction of the bridge.

More successful, however, were the efforts of these states, together with New York, to come to an agreement regarding the joint use of the Delaware River for water supply and power. Early in the year a boundary dispute between Colorado and New Mexico was decided in favor of the former by the Supreme Court of the United States.

The difficulty sometimes encountered in extraditing persons accused of crime from one state to another was illustrated in the controversy between Wisconsin and Illinois in the Sovetsky case. Sovetsky was arrested in Illinois on the Wisconsin governor's warrant and accused of sending burglars into Wisconsin to procure merchandise for him, which he sold in Illinois. Since he had not himself gone into Wisconsin to commit the burglaries, however, the governor of Illinois refused to extradite him.

STATE LEGISLATURES

BY J. M. MATHEWS

PROFESSOR AT THE UNIVERSITY OF ILLINOIS

Legislative Organization. — There has been a noticeable tendency towards the abandonment of annual sessions of the legislature in those states which still retain them and the substitution of biennial sessions. Georgia and South Carolina both adopted Constitutional amendments providing for the change to biennial sessions. This change was also advocated by Governor Fuller of Massachusetts in his message to the legislature of 1925.

In West Virginia the plan of having the legislative sessions divided into two parts known as the split-session plan, came under the disapproval of Governor Morgan of that state. In his annual message to the legislature of 1925 he asserted that the plan had resulted in inconvenience to the members of the legislature and in added burdens to the taxpayers.

Governor Terral of Arkansas in his annual message to the legislature urged that a law should be passed limiting to thirty-five the number of employees of each house. He further advocated that a fine of $500 should be assessed on the presiding officer for every warrant issued to an employee in excess of that number.

In South Dakota a movement developed in favor of the substitution of a single chamber legislature in place of the bicameral system. A resolution containing such a proposal, sponsored by Senator Dowdell, passed the state senate by a vote of 26 to 15.

In California a constitutional amendment was adopted increasing the salary of state legislators from $1,000 to $2,400 per biennium. The members' mileage allowance, however, was decreased and the allowance for attachés for both houses was reduced.

The time-honored principle of separation of powers whereby a member of the legislature cannot hold a position in the executive branch of the state government was upheld by the Supreme Court of Illinois. In October it handed down a decision in the Sonnemann case declaring that a representative in the legislature who had also been serving as a prohibition investigator under appointment by the Attorney-General of the state must repay to the state the compensation which he had received in the latter capacity. He was also required to pay lawyer's fees to the taxpayer plaintiff.

Representation in the Legislature.—There has for some time been dissatisfaction among a number of large cities with the extent of the representation accorded them in the state legislature. Such cities as Baltimore, New York, Providence, Detroit, and Chicago have claimed that they are not allowed legislative representation in proportion to their population. The most active contest over this matter during 1925 was brought about through the efforts of Chicago and of Cook County (in which it is located) to secure additional representation. The constitution of Illinois provides that the legislature shall apportion the state every ten years upon the basis of the decennial Federal Census. This was done in 1901 but no apportionment has been made since that date. The proposed constitution of 1922 attempted to remedy the situation where the legislature fails to make an apportionment by providing that in such case it shall be the duty of the secretary of state, the attorney-general, and the auditor of public accounts to do so. This plan, however, failed of adoption along with the remainder of the proposed constitution. In the legislative session of 1925 a most determined effort was made by the Cook County representatives to secure the passage of a reapportionment measure, but the effort failed. The reason for the refusal of the down-state representatives to agree to the passage of such a measure is, of course, that a reapportionment on the basis of the last census would very considerably increase the representation of Cook County at the expense of the down-state counties. Cook County now has about 37 per cent. of the legislative membership, while, by the census of 1920 it had over 47 per cent. of the population of the state, and, in all probability, at the next census it will have more than a majority of the total population.

The down-state counties with reason fear the predominance of one county in state affairs which reapportionment in accordance with population would entail. By way of justification, however, they set up the dangerous doctrine that the constitutional provision should be ignored because the welfare of the state is the highest law. Another and more technical defense is that the constitutional provision is to be regarded as merely directory and not mandatory, and hence it is for the legislature to decide within its discretion whether a reapportionment shall be made. Some even go so far as to argue that the constitutional provision is to be construed merely as a limitation on the legislature so as to prevent it from making more than one reapportionment in any one ten-year period.

When it became evident that there would be no reapportionment at the legislative session of 1925, Cook County threatened to take more drastic measures. The Cook County board of commissioners ordered the county treasurer to withhold from the state treasurer taxes collected in the county until a reapportionment should be made. This threat, however, was not carried out. The Chicago city council passed a resolution in June to the effect that, unless a reapportionment were made at the next session, steps would be taken by Cook County to secede from Illinois and set herself up as a separate state. Inasmuch, however, as permission for such a move would have to be secured from the existing state legislature as well as from Congress, it does not seem likely that this threat can be carried out.

In June the city council also passed a resolution directing the corporation counsel to start appropriate proceedings to compel the legislature to make a reapportionment. It failed, however, to make an appropriation for the purpose, and it was left to John B. Fergus, a private resident of Chicago, to push court proceedings against down-state legislators. He maintains that all legislatures in Illinois since 1911 are *de facto* merely, on account of their failure to obey the constitutional mandate. He also claims that through this failure each legislator who voted against reapportionment has violated his oath to support the constitution, and that those legislators who are also lawyers have also violated the oaths taken when they were admitted to the bar. He further maintains that Congress should interfere in the situation because failure to reapportion leaves Illinois without a republican form of government as guaranteed to each state by the Constitution of the United States.

In October, Fergus filed a petition in the state supreme court for a mandamus to compel the legislature to redistrict the state. Permission to file the petition was granted by the court on the ground that the question as to whether the courts have jurisdiction to compel legislative action as directed by the constitution is one of such public importance that it should be determined judicially. Summonses were served on most of the legislators requiring them to answer the Fergus petition and explain why they have failed to redistrict the state. In response to such summonses, a committee of down-state legislators was appointed to conduct the defense. They entered a motion that the Fergus petition be dismissed on the ground that making a reapportionment is a discretionary power and that the court is without jurisdiction to issue a mandamus in a case of this character.

What final disposition of the matter the court will make remains to be seen. Failing a judicial settlement, it would seem that an ultimate solution of the difficulty can be found only in a constitutional amendment limiting the representation of Cook County in one house of the legislature to less than a majority while according her full representation according to population in the other house. In addition to this compromise, a full measure of constitutional home rule in local matters should also be granted to Cook County, after which any under-representation in the legislature which may still be inflicted upon her will no longer be a matter of such great consequence to its voters.

STATE EXECUTIVE AND ADMINISTRATION

By J. M. Mathews

Professor at the University of Illinois

Governor's Term.—The term of office of nearly half the governors is only two years. There has been a growing feeling that this is too short, and attempts have been made in various states to lengthen the term to four years. Such an attempt failed in New Mexico, but was successful in South Carolina, where, by constitutional amendment, the term of office of the governor, attorney-general and other state officers was increased from two to four years.

The increase in the length of the governor's term is especially important in connection with the working of state administration under the plans of reorganization adopted in a number of states in recent years. One criticism of the working of the Reorganized Administrative Code adopted in Ohio in 1921 was that the department heads change too often, so that continuity of policy is broken. This is due largely to the short two-year term of the governor. An attempt was made to remedy this situation by submitting to the voters at the November, 1925, election a proposal to increase his term to four years. Unfortunately, it failed of adoption.

Governor Smith of New York has endeavored to secure the adoption of a constitutional amendment in that state increasing the governor's term to four years, but the legislature has heretofore declined to pass the proposal for submission to the voters. With the adoption by the voters in November, 1925, of the constitutional amendment for the short ballot and the reorganization of state departments, it is expected that a renewed attempt will be made in the next session of the legislature to secure favorable action on the four-year-term proposal, since this is considered to be a logical part and corollary of the reorganization plan. Governors Sweet of Colorado and Nestos of North Dakota recommended a four-year term for the governor in their messages to the legislatures of 1925.

Governor's Pardoning Power.—In her first message to the legislature, Governor Ferguson of Texas forecast a liberal pardon policy and urged the adoption of a parole system for prisoners. How extremely liberal her policy has been is indicated by the fact that, including the 105 clemency proclamations issued on Thanksgiving Day, she has granted clemency to 1,126 prisoners during the year.

A case relating to the pardoning power of an acting governor arose in Arkansas in November. Governor Terral of that state ordered the Superintendent of the Penitentiary Farm to arrest and return to prison nine persons who had been pardoned by the acting governor during the governor's absence from the state. It was alleged that a provision of law requiring publication of the fact that application for pardon had been made was not complied with in these cases.

Actions against Governors.—Governor Davis of Kansas, upon retiring from office on January 12, was arrested by county authorities on the charge that he had accepted a bribe in return for granting a pardon. Shortly before the end of his term, Governor Davis had summarily removed Chancellor Lindley of the University of Kansas. Governor Paulen, who shortly afterwards succeeded Governor Davis, immediately reinstated Chancellor Lindley in his position.

The civil suit against Governor Small of Illinois to recover interest paid on state funds while he was state treasurer dragged along during the year. The circuit court of Sangamon County decided against the governor. An appeal was taken from this decision directly to the state supreme court, but up to December 1 no final decision had been rendered.

Relations between Governor and Legislature.—In the large majority of states legislative sessions were held in 1925 and a number of new governors were inaugurated at the beginning of the year. Among these were two women, Governors Ross of Wyoming and Ferguson of Texas. In her first message to the legislature, Governor Ferguson urged a reduction in state expenditures and recommended the imposition of a tax on factory-made cigarettes, the proceeds to be used for buildings for educational institutions.

In Connecticut, proclamation was made by the governor in November, 1924, to the effect that an amendment to the state constitution had been adopted granting the governor power to veto single items in appropriation bills. All bills, however, may still be passed over the governor's veto by a simple majority of both houses of the legislature.

In Massachusetts, Governor Fuller and the legislature were at loggerheads with each other during most of the session. The controversy centered around the control of appropriations. The legislature disregarded many of the governor's budget recommendations. The governor used his item veto freely in reducing the amount of the appropriations as passed by the legislature. Public opinion generally supported the governor, and he succeeded in carrying his point in regard to most of the appropriation bills.

A spirited contest also occurred between Governor Smith and the New York legislature, which was accentuated on account of the partisan diversity between the executive and legislative departments. The governor exercised his veto power on 154 bills out of a total of 840 passed during the regular session, of which 644 were sent to the governor on the last day of the session. In this way he succeeded in cutting down considerably expenditures which would have absorbed the surplus and prevented the reduction of taxes. He was able to secure a 25 per cent. reduction in income taxes. He failed, however, in pushing through a measure for an executive budget. A sharp contest also arose over the state park program. The governor called a special session to meet on June 22 for the purpose of carrying out the program for a state park system which had been authorized by the voters at the preceding election. He and the legislature, however, were unable to agree on the agency in which the expenditure of the money for the furtherance of the program should be vested.

Texas Controversy.—In Texas a peculiar situation arose as a result of the fact that Governor Miriam A. Ferguson is the wife of the former governor who was impeached, and her husband is now her unofficial and confidential adviser. The powers of the governorship seem in large measure to be exercised by one who holds no public office, and who, under the judgment of impeachment, was ineligible to hold any state office. In order to remove some of the anomalous features of this situation, the legislature passed a bill of amnesty declaring that the judgment of impeachment was annulled, and thus restoring to the former governor his eligibility to hold office.

More recently, charges have been made against the administration of the Fergusons on the ground that large sums of state money have been wasted in connection with the state's road-building program. Attorney-General Moody brought suit against the American Road Company, which confessed judgment for $600,000 of excess profits on road contracts let by the state highway commission, which had been appointed by Governor Ferguson on the advice of her husband. Two members of the commission thereupon resigned. The next development was a petition of legislators to the governor asking that she call a special session of the legislature for sundry purposes but in reality for the purpose of impeaching any state officials who might be involved in the road contract scandal. Under the statute, if fifty legislators sign a petition for a special session for impeachment purposes and the governor declines to act, the Speaker of the House may call the session. The necessary number of signatures were secured and the Speaker threatens to call a session if the Governor fails to do so. The movement for a special session faces the difficulty, however, that the statute makes no appropriation for the expenses of the session and private subscription for this purpose would hardly be considered appropriate.

State Administrative Reorganization.—The movement for the reorganization of the state administrative agencies along lines of greater economy and efficiency, which came into prominence with the adoption by Illinois of its civil administrative code in 1917, continues to make headway. Recommendations for reorganization were made in their messages to the legislatures of 1925 by Governors Smith of New York, Christianson of Minnesota, and Gunderson of South Dakota. Some other governors also made moves in this direction, but the most important results in the way of actual reorganization were accomplished in the three states mentioned.

In New York the original project for introducing the short ballot and state administrative reorganization, contained in the proposed constitution of 1915, went down to defeat along with the remainder of that document. The movement continued, however, and, although opposed either openly or secretly by many politicians, has received the support of public opinion and of the more statesmanlike public officials of both the major political parties.

A proposed constitutional amendment along the lines of the project of 1915 was passed by the New York legislature in 1923 and again in 1925. It was thereupon submitted to the voters at the election in November and carried by a substantial majority, thus becoming a part of the constitution. During the preëlection campaign it was warmly supported by Governor Smith and also by some of the leading men in the Republican party, including Charles E. Hughes, Elihu Root, and Nicholas Murray Butler. A standing example of the ineptitude of the long ballot as applied to state affairs was contained in the results of the last gubernatorial election in New York, whereby Honorable "Al" Smith was elected governor on the Democratic ticket, but the Republicans were successful in electing the subordinate state officials. We thus have an administration divided against itself politically and no complete party responsibility for the work of administration is possible under the circumstances.

The New York constitutional amendment provides for cutting down the number of elective state officials to four, namely, the governor, lieutenant-governor, comptroller and attorney-general. They are all to be elected for the same term of two years. The amendment abolishes a number of state officials, including those of secretary of state, state treasurer, state engineer and surveyor, superintendent of state prisons and others. The central and outstanding feature of the new plan is the grouping of all the administrative agencies of the state into twenty main divisions, to take the place of the approximately 180 existing departments, bureaus, and commissions, which now in many instances perform overlapping functions. The twenty departments provided for in the amendment are as follows: (1) executive, (2) audit and control, (3) taxation and finance, (4) law, (5) state, (6) public works, (7) architecture, (8) conservation, (9) agriculture and markets, (10) labor, (11) education, (12) health, (13) mental hygiene, (14) charities, (15) corrections, (16) public service, (17) banking, (18) insurance, (19) civil service, and (20) military and naval affairs.

The comptroller and attorney-general are to be the heads of the departments of audit and control, and of law respectively. The comptroller is to be purely an auditor, without other administrative functions. The heads of all the other departments are to be appointed by the governor, with the advice and consent of the senate, except that the commissioner of education is to be appointed by the Board of Regents of the State University and that the appointment of the head of the department of agriculture and markets is not specifically vested in the governor, but is to be made in such manner as the legislature may determine. No additional departments can be created, but the number of departments may be reduced through consolidation or abolition. In case new powers and functions should be undertaken, they are to be placed under one or more of the twenty departments. The legislature, however, may create temporary commissions to meet emergencies that may arise.

The New York constitutional amendment is not self-executing. It will be the duty of the legislature meeting in January, 1926, to pass the necessary laws to carry out its provisions, and it will then go into effect on July 1, 1926. Meanwhile an unofficial commission composed of prominent members of both parties and headed by Charles E. Hughes has been created by the Republican leaders of the legislature for the purpose of working out the plan whereby the amendment can become operative.

Reorganization in Minnesota.—The movement for administrative reorganization in Minnesota, which has been hanging fire for a decade, finally reached the stage of embodiment in legislation during the session of 1925. At the previous session in 1923 the legislature had created a committee of five members for the purpose of making an investigation of the various state administrative agencies and reporting to the next session of the legislature a plan for their reorganization along lines of greater efficiency and economy. The committee reported its findings and recommendations to the legislative session of 1925. Governor Christianson had been a member of the committee and in a message to the legislature strongly supported its work and recommendations. The committee report favored the adoption of a plan whereby there should be ten administrative departments and also an executive council consisting of the governor as chairman and the constitutional elective officers, namely, secretary of state, treasurer, auditor and attorney-general. Legislation to carry out the committee's recommendations was introduced in both houses, and, after considerable wrangling, was finally passed in somewhat altered form in April and went into effect on July 1, 1925.

The reorganization act as thus passed retains the executive council as originally recommended, and vests in it the powers of certain ex officio boards, such as the board of deposit, and the board of relief. Instead of ten departments, however, the act provides for thirteen departments, as follows: (1) administration and finance, (2) conservation, (3) dairy and food, (4) agriculture, (5) highways, (6) education, (7) health, (8) commerce, (9) labor and industry, (10) public institutions, (11) taxation, (12) rural credit, and (13) drainage and waters. A noteworthy feature of the plan is the predominant extent to which boards or commissions are retained at the head of these departments. Only four departments, namely, drainage and waters, dairy and food, agriculture, and highways, have as their heads single commissioners appointed by the governor. Each of the other nine departments is under the control or supervision of a board or commission.

Theoretically, at least, there would seem to be no sufficient reason why this difference in organization was adopted. It is true, however, that in some cases the bureaus or divisions within the multi-headed departments have single officers in charge and they together constitute the board or commission at the head of the department. The most important of the thirteen departments is the department of administration and finance, at the head of which is a commission, consisting of the heads of the three divisions into which the work of the department is divided, namely, the comptroller, the commissioner of the budget, and the commissioner of purchases. The Minnesota plan does not go as far toward a scientific reorganization as might be desired, but it is nevertheless a promising step in the right direction.

South Dakota.—In response to a message of recommendation sent by Governor Gunderson of South Dakota to the legislature of that state at its 1925 session, an act was passed which provides for a partial reorganization of the state administration. By this act nine administrative agencies were consolidated into a new department of finance and eighteen into a new department of agriculture. Each of these new departments is headed by a secretary who is appointed by the governor with the consent of the senate. The department of finance thus created is organized into four divisions, namely, audits and accounts, purchasing and printing, employment, and taxation. The department of agriculture is likewise organized into four divisions, namely, animal industry; markets, statistics and immigration; inspections; and game and fish. The state auditor, a constitutional elective officer, is ex officio head of the division of audits and accounts in the department of finance. The heads of all the other divisions in both of the new departments are appointed by the secretary of the department with the advice of the governor.

Creation of New Departments.—In spite of the advance made in New York, Minnesota, South Dakota and other states in the direction of the consolidation and abolition of useless boards, bureaus and agencies, the creation of new departments and administrative agencies continues in most states. Thus in Illinois, Governor Small, in his message to the legislature of 1925, recommended that, "in view of the increased volume of business in some of the departments incident to the great road construction and waterway building programs, and the ever-increasing activities in all departments," there should be created a department of waterways and a department to comprise the divisions of purchases and supplies and of printing. The activities of these divisions he held to be important because they "intermingle closely with those of all other departments." The legislature complied substantially with the governor's recommendation by amending the civil administrative code of 1917 so as to provide for the creation of a new code department to be known as the department of purchases and construction, which is to exercise the functions that, according to the governor's recommendation, should have been exercised by the two new departments whose creation he suggested. The legislature also amended the code so as to create the new department of conservation, to which is transferred the work of protecting fish, game and forests, formerly performed by the department of agriculture.

STATE JUDICIARY

By J. M. Mathews

Professor at the University of Illinois

Commercial Arbitration.—A few of the outstanding developments in this field may be briefly noted. Rapid progress has been made in commercial arbitration during the year, especially through the efforts of the Arbitration Society of America, in the establishment of tribunals for settling business and other disputes without recourse to the courts. In addition to New York and New Jersey, Massachusetts has now provided for commercial arbitration. It is stipulated that, in case the parties agree to accept arbitration in place of the usual court trial, the decisions of the arbitration tribunal shall be binding.

New York Reorganization.—In New York a proposed amendment to the judiciary article of the state constitution was submitted to the voters at the November, 1925, election. It is a long and complicated measure and embodies the result of ten years' study by members of the bar, of the legislature, of the state constitutional convention of 1915, and of the judiciary constitutional convention of 1921. In general it may be said to be intended to improve the organization, jurisdiction, and methods of procedure of the state and local courts. One of its primary objects is the lessening of delays in the administration of justice. One of its provisions is a requirement that the legislature shall provide for the compilation and publication annually of the civil and criminal judicial statistics of the state, a long-felt want. Another provision is that authorizing an appeal direct to the Court of Appeals in cases where the only question involved is the constitutionality of a statute, thus avoiding the useless delay and expense of a double appeal. The amendment also authorizes appellate courts, in case of reversal, to render final judgment rather than to remand the case to the lower court for a new trial, thereby also avoiding expense and delay. The amendment was approved at the polls in November by a substantial majority of the voters. A proposed amendment containing some provisions of a similar character has also been passed by the legislature of California.

State Judicial Councils.—The movement for the creation of state judicial councils with rule-making powers has made some progress during the year. To the three states—Ohio, Oregon and Massachusetts—already having such councils must now be added North Carolina, which passed a law creating such a body at the legislative session of 1925. The North Carolina act differs from those of the other states in that it creates a council consisting of the supreme court and superior court judges, together with the attorney-general and a member of the bar appointed by the governor from each judicial district. In California a proposed constitutional amendment creating a judicial council was passed by the legislature and will be submitted to the voters in November, 1926. It was proposed in the form of a constitutional amendment rather than embodied in a legislative act in order to avoid the danger of possible unconstitutionality arising from the wide scope of rule-making powers conferred on the council. These powers, however, were somewhat narrowed by the legislature in the form in which it passed the proposal. During the year the Pennsylvania Bar Association approved the report of its special committee appointed to consider the creation of a state judicial council, and it is expected that a bill embodying the plan will be introduced in the legislature of 1927.

Anti-Injunction Action.—The Illinois legislature of 1925 passed the anti-injunction bill which prohibits judges of any court of the state from granting injunctions restraining strikers from engaging in peaceful persuasion and "peaceful picketing" in labor disputes. In November the law was held unconstitutional by the superior court of Cook County in a decision finding members of the Retail Clerks' Union guilty of contempt of court for violation of an injunction against picketing. What attitude the supreme court will take toward the new anti-injunction bill still remains to be seen.

STATE FUNCTIONS

By J. M. Mathews

Professor at the University of Illinois

State Finance.—State expenditures are constantly increasing and many states are hard pushed to find adequate sources of revenue. The governors, in their messages to the legislatures of 1925, reveal in many instances their anxiety regarding a solution of this problem. A comparatively recent source of revenue which has spread rapidly is the gasoline tax of from one to five cents a gallon, which is now found in all but four states. During the first half of 1925 in the forty-four states having this tax about $60,000,000 in revenue was derived from it. This tax was most productive in California, yielding about $7,500,000 in the six months' period. In Wisconsin, a large part of the revenue for state purposes is derived from the income and inheritance taxes. These taxes proved so productive that it was announced in October that Wisconsin would levy no state property taxes during the year. On the other hand, Florida has adopted constitutional provisions prohibiting income and inheritance taxes as an obvious bid for wealthy residents. Oregon has also abandoned the income tax. In Illinois, the legislature of 1925 passed a resolution to submit to popular referendum a proposed amendment to the state constitution enabling the legislature, by a two-thirds vote, to levy taxes upon incomes, to grant exemptions from taxation by general law and to classify property for purposes of taxation. It is required that all real estate shall be in one class, except that mineral land and land devoted to reforestation may be in different classes. The proposed amendment will come up for popular vote in November, 1926.

Budget.—Extension of the executive budget has made some progress during the year. Governor Smith of New York was balked in his efforts to secure the adoption of such a system in the legislative session of 1925, but is continuing his efforts in this direction. The introduction of such a system or the improvement and strengthening of existing budgetary control is urged in their messages to the 1925 legislatures by the governors of Washington, South Dakota, North Carolina, Kansas, Montana, Rhode Island, Missouri and West Virginia. In response to these messages laws providing for the executive budget system were passed in Washington and North Carolina, and better methods of fiscal control were adopted in Minnesota and South Dakota in connection with their administrative reorganizations. In some states the existing budget system is not as effective as it might be because it is not applied to all public agencies of the state. Thus, in New Jersey the Bright Investigating Committee reported in November that the state's expenditures during the fiscal year ending June 30, 1925, were about $66,000,000, of which only about one-third was subject to legislative review through the budget system. The Committee pointed out that some departments are operating through bond issues and others through departmental receipts. Governor Silzer of New Jersey, in his message to the legislature of 1925, recommended that all state funds be paid into the treasury, as is now required by law in many states. Substantially the same recommendation was made by the governors of Utah and Colorado, it being pointed out that, in the latter state, only about one-fourth of the state expenditures consist of appropriations from the general funds. Continuing appropriations were condemned by the governors of Maine, Idaho and Tennessee.

Increase in state indebtedness through bond issues has recently proceeded at a rapid rate. As a rule, these bond issues are floated for the purpose of building permanent improvements, such as a system of hard roads. Thus, in November, 1924, the voters of Illinois approved a $100,000,000 bond issue for this purpose. At the same time the voters of New York approved a $15,000,000 bond issue for a system of state parks. At the election of November, 1925, the voters of New York passed on two proposed bond issues. One was for $300,000,000 to eliminate railroad grade crossings, and provided that 50 per cent. of the cost is to be borne by the railroads, 25 per cent. by the state government, and 25 per cent. by the particular city, town or village. The other proposed bond issue was one of $100,000,000 for financing permanent state improvements at the rate of $10,000,000 a year for the next ten years. The particular improvements for which the money is to be used are not exactly specified in the amendment, and this was one ground of objection to it. It is expected, however, that it will be used principally in the construction of new buildings at the various state institutions, which are now badly overcrowded, but it may also be used for building bridges and other purposes. This latter amendment was strongly opposed on the ground that it represented an abandonment of the safe and sane pay-as-you-go policy. On the other hand, the proposal was supported on the ground that it would enable the state to adopt a constructive and far-sighted policy in connection with the development of the state institutions so as to make them adequate to meet the growing needs. At the November election both of the proposed bond issues were approved by the voters.

Other State Functions.—States and municipalities not infrequently engage in the operation of public utilities, but it seems that constitutional objection may be raised to the entrance of the state into such a business as the buying and selling of coal or gasoline for the purpose of keeping down the price. South Dakota engaged in the gasoline business for this purpose. The White Eagle Refining Company sought an injunction to restrain the state from continuing in the business. The injunction was granted and, in October, the supreme court of South Dakota held unconstitutional the law under which such participation was attempted to be authorized.

The Kansas Industrial Court has again received a hard blow from the Supreme Court of the United States. The Industrial Court was established in 1920 for the purpose of looking out for the interests of the public—the party of the third part—in disputes between capital and labor. In 1923 the Supreme Court of the United States, in the Wolff Packing Company case, held that the Industrial Court had no power to fix the wages of persons employed in industry. In April, 1925, it held that the Industrial Court could not fix the hours and working conditions of employees, nor could the state provide for compulsory arbitration in fixing of either wages or conditions of labor. Such a system, it was held, infringes the liberty of contract and rights of property guaranteed by the due process of law clause of the Fourteenth Amendment.

Minimum wage laws have recently had hard sledding in the courts. In October, the Arizona minimum wage law for women was declared unconstitutional by the Supreme Court of the United States.

Two decisions of general interest were rendered during the year regarding the extent of the power of the state in maintaining and regulating systems of education. The legislature of Oregon passed an act requiring children between the ages of eight and sixteen, with certain exceptions, to attend the public schools. In June the act was declared unconstitutional by the Supreme Court of the United States on the ground that it was an unreasonable interference with "the liberty of parents and guardians to direct the upbringing of children under their control" and would therefore deprive them of liberty without due process. (Pierce v. Society of the Sisters of the Holy Names, 45 Sup. Ct. Rep., 571.) The court recognized, however, that the state may regulate private schools and may require in them the study of certain subjects, such as those essential to good citizenship. The second decision was that in the Scopes case in Tennessee, in which the state law prohibiting the teaching of evolution in the public schools was upheld in the lower court.

During the year the organization of better means for the enforcement of law received some attention. A state police force was created in Rhode Island along the lines of the Pennsylvania and New York forces. In Illinois, the general police powers of the state highway maintenance patrol were extended. The efforts of many of the states, however, in coöperating with the National Government in the enforcement of prohibition seemed unavailing to cope with the widespread violation of the national prohibition law.

CENTRALIZATION OF STATE AUTHORITY

By Roger H. Wells
Assistant Professor of Politics, Bryn Mawr College

During 1925, state authority was not materially enlarged at the expense of local government. Finance, education, health, and public utilities continued to be important fields for the extension of state supervision and control.

Finance.—In Ohio, the legislature passed four measures designed to relieve local taxing authorities from some of the hardships imposed by the Smith one per cent. tax limit law. (See pp. 3 ff., 345 ff., 371 ff., and 422 ff., Laws of 1925.) These measures sanctioned an emergency tax levy to pay deficiencies in operating revenues for the current fiscal year, exempted from the tax limit all taxes levied to meet the principal and interest of debts incurred by popular vote, granted to all local taxing authorities the privilege of submitting to the voters the question of additional levies outside of the existing tax limits, and allowed cities and villages under home rule charters to be entirely free from the Smith law, provided they incorporated within their charters provisions for a budget system and for some kind of tax limitation. On the other hand, a constitutional amendment, which forbade borrowing for current expenses or for improvements having an estimated usefulness of less than five years, and which required that no bonds should run longer than the probable period of usefulness of the assets acquired, was defeated by the voters at the election of November 3, 1925. This amendment merely sought to write into the constitution restrictions already embodied in an existing debt statute.

The drastic Indiana plan of central supervision of local budgets and bond issues found champions in New Jersey, Minnesota, and North Dakota but the legislatures of those states were unwilling to adopt that plan.

Education.—State subventions continued to be a favorite method of increasing state control over local school systems. Thus, in Georgia, a recent statute (Ch. 395, Laws of 1925), requires, as one of the prerequisites to receiving state aid, that all local public school boards submit annual budgets to the state department of education on forms and according to the classification prescribed by that department. Expenditures called for in the budget must not exceed the estimated income as shown in the budget.

Health.—Water supply and sewage disposal tend to pass more and more under central control. The Connecticut legislature created a state water commission (Ch. 143, Laws of 1925), empowered to command municipal or private corporations to install systems designed to "eliminate, reduce, or control water pollution." This act extends the authority formerly exercised by the state department of health.

Legislation of Delaware in 1925 conferred somewhat similar powers on the state board of health. Michigan took a further step in extending state supervision over public water supplies. By an act of 1925, bonds for the construction of sewage disposal plants may be ordered to be issued by the state department of health or by the courts.

Michigan likewise increased the amount of state aid to county tuberculosis sanitoria and at the same time raised the standards necessary for such institutions in order to receive such state aid.

Public Utilities.—A considerable number of states (*e. g.*, California, Iowa, Maine, Minnesota, North Carolina, Pennsylvania, and Vermont), passed laws extending the control of state public utilities commissions over motor buses. So far as local governments are concerned, the general effect of these laws is to restrict the power of local authorities to regulate motor buses.

V. STATE AND COUNTY GOVERNMENT

COUNTY GOVERNMENT

By Roger H. Wells
Assistant Professor of Politics, Bryn Mawr College

Failure of Special Charters in New York.—County government continued to be the subject of considerable discussion during 1925 but the positive accomplishments were few in number. The new charters proposed for Westchester and Nassau Counties, New York, were defeated by the voters in the November elections. These charters were made possible by a constitutional amendment, adopted in 1921, which permitted the legislature, subject to local referendum, to provide special types of government for the two counties in question—counties which, on account of their large populations and nearness to New York City, had found the prevailing form of county government particularly unsatisfactory. The rejected charters were framed by nonpartisan commissions and were then enacted by the legislature. (Nassau County charter, enacted as Ch. 863, Laws of 1923, amended by Chs. 451, 452, 546, Laws of 1925; Westchester County charter enacted as Ch. 587, Laws of 1925.)

Westchester Plan.—The main features embodied in the Westchester County charter are as follows:—The board of supervisors as at present organized is continued but it no longer exercises administrative powers and its legislative authority is somewhat restricted. An elective chief executive, chosen for a four year term, is provided in the form of a county president, an officer analogous to a mayor, and the administrative functions are divided among eight enumerated departments. Six of the department heads are appointed by the president without the confirmation of the board of supervisors and hold office at his pleasure. The six departments thus placed under the control of the president are welfare, headed by the commissioner of welfare who was formerly elected; law, headed by the county attorney who was formerly appointed by the board of supervisors; public works and buildings, engineering, weights and measures, and health.

The elective offices of treasurer and comptroller are abolished and their functions are taken over by an elective commissioner of finance. The elective coroners are replaced by a medical examiner appointed by the board of supervisors. The constitutional offices of sheriff, county clerk, district attorney, county judge, and surrogate continue, as before, to be filled by election. Borrowing a leaf from New York city governments, a board of estimate is established to consist of the president, vice president (elected for four years and presiding over the board of supervisors), and commissioner of finance.

This board prepares the budget from estimates presented to the county president and submits it to the board of supervisors whose only power over appropriations is limited to striking out or reducing items in the budget and even this power is denied in the case of salary items. The board of estimate also fixes salaries except those fixed by law, creates or abolishes positions in all departments, controls the purchase of supplies and the letting of contracts, and has broad investigative authority. The Nassau County charter is similar in principle to that of Westchester but there are certain differences in organization which space will not permit to mention here. Though defeated, these charters represent one of the most important attempts to reform county government in the eastern states.

The Butte-Silver Bow Charter was amended by the Montana legislature of 1925. This charter was the outcome of a constitutional amendment adopted in 1922 which empowered the legislature, subject to local referendum, to provide new forms of government for counties or consolidated cities and counties.

As originally drafted by Dr. A. R. Hatton, the National Municipal League's charter consultant, the charter bill permitted the city of Butte and the county of Silver Bow to consolidate under a commission-manager type of government. In this form, it was passed by the legislature (Ch. 160, Laws of 1923), but was defeated when submitted to a referendum vote in 1924. The recent amendments (Ch. 44, Laws of 1925), weaken the power of the manager and lengthen the ballot by providing that the city and county attorney, the assessor, and the sheriff shall be elected and not appointed. The amended charter will again be submitted to a referendum if 1,500 voters so petition.

County - Manager Government.—The County-Manager system was discussed in a number of legislatures, notably Missouri and Ohio, but no definite action resulted. In Ohio, city-county consolidation and county home rule likewise went down to defeat.

Oregon Commission.—The Oregon legislature authorized (Ch. 217, Laws of 1925), the creation of a commission to study and report upon the possible simplification of local government in Multnomah County (which contains the City of Portland). This commission is to report to the governor by November, 1926, and also to the 1927 legislature.

Utah (Ch. 25, Laws of 1925) directs that each county shall adopt a budget system as outlined in the act, but makes no provision for central supervision of such county budgets.

POPULAR GOVERNMENT

By Roger H. Wells

Assistant Professor of Politics, Bryn Mawr College

Elections.—A number of changes in primary and election laws were made in 1925. Oklahoma introduced the preferential ballot in primary elections (Ch. 29, Laws of 1925). Arizona (Ch. 75, Laws of 1925) and Vermont (Ch. 5, Laws of 1925) extended the privilege of absent-voting to persons kept away from the polls because of illness or physical disability. Utah (Ch. 76, Laws of 1925) provided for registration of voters who expect to be absent on the regular days of registration. The same state also established a system of double election boards so that one board may begin to count the votes before the polls are closed (Ch. 34, Laws of 1925). Idaho (Ch. 96, Laws of 1925) introduced a system of permanent registration.

Direct Primary.—The status of the direct primary remained the same during 1925. At present, there are mandatory direct primary laws in thirty-nine states, and optional laws in six states. In the case of the former, some or all of the candidates for state or local elective offices must be nominated as the direct primary act requires; while in the case of the latter, each political party through its appropriate committees, may decide whether or not the direct primary law shall be adopted and used by the party in nominating its candidates. Connecticut, New Mexico, and Rhode Island are the only states in which nominations are made exclusively by methods other than the direct primary. The presidential preference primary now exists in some form in twenty-two states.

Initiative, Referendum, and Recall.—No changes were made in these institutions during 1925. The statutory initiative and referendum at present exist in eighteen states,—South Dakota, Utah, Oregon, Nevada, Montana, Oklahoma, Maine, Missouri, Michigan, Arkansas, Colorado, California, Arizona, Nebraska, Ohio, Washington, North Dakota, and Massachusetts. (The Mississippi initiative and referendum provisions were declared void by the state supreme court in 1922. For the status of the constitutional initiative, see Table III, State Constitutions, *supra.*) Maryland and New Mexico have the direct popular referendum but not the initiative. The recall is found in ten states,—Oregon, California, Arizona, Colorado, Nevada, Washington, Michigan, Kansas, Louisiana, and North Dakota. In Washington, Michigan, and Louisiana, the recall does not apply to judges. In Kansas, appointive as well as elective officers are subject to the recall.

Measures Voted on in State Elections.—The following is a brief digest of the measures submitted to the state electorates during 1925.

Arizona.—Submitted Sept. 29.

Constitutional amendment, amending Art. XVIII, Sec. 8, providing for a more adequate system of workmen's compensation. Proposed by the legislature. Adopted.

Maine.—Submitted Sept. 14.

Constitutional amendment, amending Art. IX, Sec. 17, authorizing the issuing of bonds not to exceed three million dollars to be used for the purpose of building a bridge across the Kennebec River. Adopted, 54,107 for, 8,228 against.

Constitutional amendment, amending Art. IX, Sec. 17, providing for an increase in the amount of state bonds that may be issued for the purpose of building state highways and interstate, intrastate, and international bridges. Adopted, 49,821 for, 10,332 against.

Act incorporating Dexter P. Cooper, Incorporated, for the purpose of developing and utilizing the power of the tides in the Bay of Fundy. (Bay of Fundy hydroelectric power project.) Referendum ordered by legislature. Adopted, 53,547 for, 7,220 against.

Submitted Dec. 7.

Act relating to standard time (forbidding towns and municipalities to establish "daylight saving" time). Referendum by petition. Adopted.

Act to define certain grades of milk offered for sale within the state. Referendum by petition. Rejected.

New York.—Submitted Nov. 3.

Constitutional amendment, amending Art. VII by adding Sec. 15, authorizing creation of a debt not exceeding ten million dollars annually for ten years for purpose of constructing buildings at the various state institutions. Adopted, 960,385 for, 937,990 against.

Constitutional amendment, amending Art. VII by adding Sec. 14, authorizing creation of a debt not exceeding three hundred million dollars for purpose of eliminating railroad grade crossings. Adopted, 1,032,109 for, 859,702 against.

Constitutional amendment, amending Art. V and Art. VIII, Sec. 11, providing for administrative reorganization and shorter ballot. (See *State Administration, supra.*) Adopted, 1,048,087 for, 775,768 against.

Constitutional amendment, amending Art. VI, relating to the organization of the judicial system of the state. (See *State Courts, supra.*) Adopted. 1,090,632 for, 711,018 against.

Ohio.—Submitted Nov. 3.

Constitutional amendment, amending Art. VIII, Sec. 13, relative to the incurring of indebtedness by political subdivisions. (See *Centralization of State Authority, supra.*) Proposed by legislature. Rejected, 450,218 for, 535,251 against.

Constitutional amendment, amending Art. XII, Sec. 2, authorizing the legislature to tax intangible property without regard to the uniformity requirement of the constitution. Proposed by legislature. Rejected, 435,944 for, 501,221 against.

Constitutional amendment, amending Art. III, Sec. 2 and Art. X, Sec. 2, providing for a four-year term of office for elective state and county officials. Proposed by legislature. Rejected, 325,541 for, 543,183 against.

STATE AND COUNTY STATISTICS

By Roger H. Wells
Professor at Bryn Mawr College

THE STATES OF THE UNION
AREA, POPULATION, RATIFICATION OR ADMISSION

State	Ratification of Constitution	Area, sq. m.	Population April 15, 1910	Population Jan. 1, 1920	Percentage of Increase 1910-1920	Rank in Population 1920
Delaware	Dec. 7, 1787	2,370	202,322	223,003	10.2	46
Pennsylvania	Dec. 12, 1787	45,126	7,665,111	8,720,017	13.8	2
New Jersey	Dec. 18, 1787	8,224	2,537,167	3,155,900	24.4	10
Georgia	Jan. 2, 1788	59,265	2,609,121	2,895,832	11.0	12
Connecticut	Jan. 9, 1788	4,965	1,114,756	1,380,361	23.9	29
Massachusetts	Feb. 6, 1788	8,266	3,366,416	3,852,356	14.4	6
Maryland	April 28, 1788	12,327	1,295,346	1,449,661	11.9	28
South Carolina	May 23, 1788	30,989	1,515,400	1,683,724	11.1	26
New Hampshire	June 21, 1788	9,341	430,572	443,083	2.9	41
Virginia	June 26 1788	42,627	2,061,612	2,309,187	12.0	20
New York	July 26, 1788	49,204	9,113,614	10,385,227	14.0	1
North Carolina	Nov. 21, 1789	52,426	2,206,287	2,559,123	16.0	14
Rhode Island	May 29, 1790	1,248	542,610	604,397	11.4	38
	Date of Admission					
Vermont	March 4, 1791	9,564	355,956	352,428	—1.0	44
Kentucky	June 1, 1792	40,598	2,289,905	2,416,630	5.5	15
Tennessee	June 1, 1796	42,022	2,184,789	2,337,885	7.0	19
Ohio	Nov. 29, 1802	41,040	4,767,121	5,759,394	20.8	4
Louisiana	April 8, 1812	48,506	1,656,388	1,798,509	8.6	22
Indiana	Dec. 11, 1816	36,354	2,700,876	2,930,390	8.5	11
Mississippi	Dec. 10, 1817	46,865	1,797,114	1,790,618	—0.4	23
Illinois	Dec. 3, 1818	56,665	5,638,591	6,485,280	15.0	3
Alabama	Dec. 14, 1819	51,998	2,138,093	2,348,174	9.8	18
Maine	March 15, 1820	33,040	742,371	768,014	3.5	35
Missouri	Aug. 10, 1821	69,420	3,293,335	3,404,055	3.4	9
Arkansas	June 15, 1836	53,335	1,674,449	1,752,204	11.3	25
Michigan	Jan. 26, 1837	57,980	2,810,173	3,668,412	30.5	7
Florida	March 3, 1845	58,666	752,619	968,470	28.7	32
Texas	Dec. 29, 1845	265,896	3,896,542	4,663,228	19.7	5
Iowa	Dec. 28, 1846	56,147	2,224,771	2,404,021	8.1	16
Wisconsin	May 29, 1848	56,066	2,333,860	2,632,067	12.8	13
California	Sept. 9, 1850	158,297	2,377,549	3,426,861	44.1	8
Minnesota	May 11, 1858	84,682	2,075,708	2,387,125	15.0	17
Oregon	Feb. 14, 1859	96,699	672,765	783,389	16.4	34
Kansas	Jan. 29, 1861	82,158	1,690,949	1,769,257	4.6	24
West Virginia	June 19, 1863	24,170	1,221,119	1,463,701	19.9	27
Nevada	Oct. 31, 1864	110,690	81,875	77,407	—5.5	48
Nebraska	March 1, 1867	77,520	1,192,214	1,296,372	8.7	31
Colorado	Aug. 1, 1876	103,948	799,024	939,629	17.6	33
North Dakota	Nov. 2, 1889	70,837	577,056	646,872	12.1	36
South Dakota	Nov. 2, 1889	77,615	583,888	636,547	9.0	37
Montana	Nov. 8, 1889	146,997	376,053	548,889	46.0	39
Washington	Nov. 11, 1889	69,127	1,141,990	1,356,621	18.8	30
Idaho	July 3, 1890	83,888	325,594	431,866	32.6	42
Wyoming	July 10, 1890	97,914	145,965	194,402	33.2	47
Utah	Jan. 4, 1896	84,990	373,351	449,396	20.4	40
Oklahoma	Nov. 16, 1907	70,057	1,657,155	2,028,283	22.4	21
New Mexico	Jan. 6, 1912	122,634	327,301	360,350	10.1	43
Arizona	Feb. 14, 1912	113,956	204,354	334,162	63.5	45
Total[1]		[2] 3,026,789	91,972,266	105,710,621	14.9	

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[1] The totals include the area and population of the District of Columbia. Including the District of Columbia (437,571), Alaska (55,036), Hawaii (255,912), Porto Rico (1,299,809), Panama Canal Zone (22,858), Virgin Islands (Nov. 1, 1917, 26,051), Philippine Islands (Dec. 31, 1918, 10,350,640), Guam (13,275), American Samoa (8,056), and military and naval personnel abroad (117,238), the total population of the United States and its possessions on Jan. 1, 1920, was 117,859,495.

On July 1, 1925, the population of the forty-eight states and the District of Columbia, as estimated by the Bureau of the Census, was 113,493,720.

[2] 2,973,774 sq. miles land, 53,015 sq. miles water.

V. STATE AND COUNTY GOVERNMENT

STATE TAXATION, INDEBTEDNESS, REVENUES, AND EXPENDITURES

(in thousands of dollars)

(Bureau of the Census annual report on *Financial Statistics of States.* They relate to the fiscal year ending Dec. 31, 1923, or on some prior date in 1923)

State	Assessed Valuation of Property Subject to the General Property Tax	Total Levy of the General Property Tax	Bonded Debt	Net Debt (1)	Receipts		Expenditures	
					Revenue	Non-Revenue	Governmental Cost	Non-Governmental Cost
Alabama	$ 956,689	$ 6,218	$ 12,507	$ 16,846	$ 16,724	$ 8,633	$ 19,927	$ 5,433
Arizona	733,994	3,772	2,873	2,328	7,706	4,268	8,538	6,589
Arkansas	589,751	5,130	2,574	2,499	8,201	367	7,754	579
California	(2)	....	81,389	81,462	62,111	36,292	73,921	31,173
Colorado	1,543,211	6,064	11,016	10,734	15,073	9,152	16,414	7,767
Connecticut	2,018,536	2,230	16,291	5,095	23,639	4,838	21,172	6,298
Delaware	228,851	572	7,694	6,635	6,527	2,181	7,386	815
Florida	445,103	5,118	1,266	1,065	12,097	3,392	12,729	2,017
Georgia	1,190,920	5,954	5,294	6,900	18,905	7,147	17,765	7,578
Idaho	481,479	2,319	5,826	5,304	6,799	6,296	6,351	6,288
Illinois	4,000,497	18,002	23,158	24,756	53,440	20,873	66,974	8,084
Indiana	5,281,804	15,845	1,205	1,545	30,943	9,677	29,621	9,713
Iowa	1,766,329	12,523	11,797	11,715	32,000	26,014	42,737	11,430
Kansas	3,557,172	5,948	....	....	13,291	14,779	13,262	14,086
Kentucky	2,448,453	8,883	51	2,505	22,211	8,751	19,338	8,024
Louisiana	1,600,657	8,403	12,166	14,146	19,282	17,553	21,223	17,531
Maine	672,767	5,042	12,414	13,755	14,161	2,736	14,783	1,867
Maryland	1,782,212	4,914	34,247	23,098	20,026	16,765	22,231	15,054
Massachusetts	5,971,195	12,000	126,396	72,523	52,019	55,190	44,895	66,940
Michigan	5,929,615	25,880	63,550	65,655	57,072	52,014	62,079	42,081
Minnesota	2,353,527	8,371	17,854	19,220	41,848	9,375	43,012	11,249
Mississippi	702,338	5,618	9,603	16,961	10,784	9,606	12,324	6,853
Missouri	4,591,215	4,591	28,523	32,094	30,238	14,412	41,455	11,945
Montana	465,200	2,202	4,130	3,811	6,965	18,307	9,872	15,888
Nebraska	3,202,705	7,426	....	....	13,615	5,218	11,771	7,041
Nevada	199,053	1,380	1,249	1,629	4,172	1,436	4,118	1,635
New Hampshire	624,223	2,331	980	13,755	6,334	1,880	5,612	2,269
New Jersey	4,385,064	26,609	24,100	22,145	48,633	18,056	49,095	13,522
New Mexico	313,065	1,498	4,035	3,947	5,642	3,231	5,822	4,165
New York	15,390,398	21,457	264,244	181,799	144,018	43,981	142,430	53,123
North Carolina	(2)	....	53,968	54,093	22,158	81,989	43,401	50,430
North Dakota	1,308,315	4,762	13,592	3,871	16,067	32,068	18,334	23,907
Ohio	10,918,868	3,274	23,751	29,103	56,279	38,122	48,328	45,191
Oklahoma	1,671,753	835	4,232	3,217	18,029	13,589	18,935	14,581
Oregon	1,009,499	8,835	59,084	40,876	17,485	23,873	20,523	16,720
Pennsylvania	(2)	....	50,867	48,344	92,869	19,386	88,673	25,324
Rhode Island	1,089,921	1,307	12,157	9,715	6,870	1,337	7,407	990
South Carolina	424,015	2,600	5,324	5,189	9,909	11,762	8,623	12,639
South Dakota	1,977,127	3,685	57,470	14,522	11,996	12,319	13,417	13,835
Tennessee	1,730,828	6,230	14,738	17,263	16,304	4,926	14,485	5,259
Texas	3,469,386	26,020	4,457	4,466	48,190	12,305	48,451	10,826
Utah	646,710	4,843	9,910	8,710	9,149	4,545	8,744	5,035
Vermont	307,250	2,049	2,051	2,049	5,690	340	5,624	480
Virginia	1,908,082	6,886	20,096	20,007	27,835	11,288	28,475	12,183
Washington	1,126,367	15,249	11,500	10,553	29,471	13,673	25,034	13,275
West Virginia	2,092,556	3,107	28,404	26,773	14,380	33,109	19,571	29,700
Wisconsin	5,131,618	15,854	2,063	841	34,187	6,906	31,873	8,362
Wyoming	437,329	1,661	3,397	3,364	5,936	6,974	5,800	5,994

(1) Net debt as funded and floating debt less sinking fund assets.
(2) General property not assessed for state purposes.

STATE AND TERRITORIAL GOVERNORS

State or Territory	Governor	Capital	Length of Term	Term Expires	Salary
Maine	*R. O. Brewster*	Augusta	2	January, 1927	$ 5,000
New Hampshire	*J. G. Winant*	Concord	2	January, 1927	3,000
Vermont	*F. S. Billings*	Montpelier	2	January, 1927	3,000
Massachusetts	*A. T. Fuller*	Boston	2	January, 1927	10,000
Rhode Island	*A. J. Pothier*	Providence	2	January, 1927	8,000
Connecticut	*J. H. Trumbull*	Hartford	2	January, 1927	5,000
New York	A. E. Smith	Albany	2	January, 1927	$10,000
New Jersey	G. S. Silzer	Trenton	3	January, 1926	10,000
Pennsylvania	*Gifford Pinchot*	Harrisburg	4	January, 1927	18,000
Delaware	*R. P. Robinson*	Dover	4	January, 1929	$ 4,000
Maryland	A. C. Ritchie	Annapolis	4	January, 1927	4,500
Virginia	E. L. Trinkle	Richmond	4	January, 1926	5,000
West Virginia	*H. M. Gore*	Charleston	4	March, 1929	10,000
North Carolina	A. W. McLean	Raleigh	4	January, 1929	6,500
South Carolina	T. G. McLeod	Columbia	4	January, 1929	7,500
Georgia	C. M. Walker	Atlanta	2	June, 1927	7,500
Florida	J. W. Martin	Tallahassee	4	January, 1929	6,000
Kentucky	W. J. Fields	Frankfort	4	December, 1927	$ 6,500
Tennessee	Austin Peay	Nashville	2	January, 1927	4,000
Alabama	W. W. Brandon	Montgomery	4	January, 1927	7,500
Mississippi	H. L. Whitfield	Jackson	4	January, 1928	7,500
Arkansas	T. J. Terral	Little Rock	2	January, 1927	4,000
Louisiana	H. J. Fuqua	Baton Rouge	4	May, 1928	7,500
Texas	Mrs. M. A. Ferguson	Austin	2	January, 1927	4,000
Oklahoma	M. E. Trapp	Oklahoma City	4	January, 1927	4,500
Ohio	A. V. Donahey	Columbus	2	January, 1927	$10,000
Indiana	*Ed. Jackson*	Indianapolis	4	January, 1929	8,000
Illinois	*Len Small*	Springfield	4	January, 1929	12,000
Michigan	*A J. Groesbeck*	Lansing	2	January, 1927	5,000
Wisconsin	*J. J. Blaine*	Madison	2	January, 1927	5,000
Minnesota	*Th. Christianson*	St. Paul	2	January, 1927	7,000
Iowa	*John Hammill*	Des Moines	2	January, 1927	6,200
Missouri	*S. A. Baker*	Jefferson City	4	January, 1929	5,000
Kansas	*B. S. Paulen*	Topeka	2	January, 1927	5,000
Nebraska	*Adam McMullen*	Lincoln	2	January, 1927	7,500
North Dakota	*A. G. Sorlie*	Bismarck	2	January, 1927	5,000
South Dakota	*Carl Gunderson*	Pierre	2	January, 1927	3,000
Montana	J. E. Erickson	Helena	4	January, 1929	$ 7,500
Idaho	*C. C. Moore*	Boise	2	January, 1927	5,000
Wyoming	Mrs. Nellie T. Ross	Cheyenne	4	January, 1927	6,000
Colorado	*C. J. Morley*	Denver	2	January, 1927	5,000
New Mexico	A. T. Hannett	Santa Fé	2	January, 1927	5,000
Arizona	G. W. P. Hunt	Phoenix	2	January, 1927	6,500
Utah	G. H. Dern	Salt Lake City	4	January, 1929	6,000
Nevada	J. C. Scrugham	Carson City	4	January, 1927	7,000
California	*F. W. Richardson*	Sacramento	4	January, 1927	10,000
Oregon	W. M. Pierce	Salem	4	January, 1927	7,500
Washington	*R. H. Hartley*	Olympia	4	January, 1929	6,000
Alaska	*G. A. Parks*	Juneau	4	June, 1929	$ 7,000
Hawaii	*W. R. Farrington*	Honolulu	4	June, 1929	10,000
Porto Rico	*H. M. Towner*	San Juan	Indef.		10,000
Philippine Islands	*General Leonard Wood*	Manila	Indef.		18,000

Democrats in Roman; Republicans in *Italics.*

STATE AND TERRITORIAL LEGISLATURES

State or Territory	Number of Members		Length of Term (years)		Regular Sessions	Regular Session Begins	Limit of Session (days)	Salary
	Senate	House	Senate	House				
Maine	31	151	2	2	Biennial	January, 1927	None	$ 400 per term (1)
New Hampshire	24	421	2	2	Biennial	January, 1927	None	206 per term (1)
Vermont	30	247	2	2	Biennial	January, 1927	None	400 per term (1)
Massachusetts	40	240	2	2	Annual	January, 1926	None	1,500 per year
Rhode Island	39	100	2	2	Annual	January, 1926	60	5 per day
Connecticut	35	262	2	2	Biennial	January, 1927	5 mo.	300 per term
New York	51	150	2	1	Annual	January, 1926	None	$1,500 per year
New Jersey	21	60	3	1	Annual	January, 1926	None	500 per year
Pennsylvania	50	208	4	2	Biennial	January, 1927	None	2,500 per biennium (1)
Delaware (2)	17	35	4	2	Biennial	January, 1927	60	$ 10 per day
Maryland	29	118	4	4	Biennial	January, 1927	90	5 per day
Virginia	40	100	4	2	Biennial	January, 1926	60 (3)	500 per biennium
West Virginia	30	94	4	2	Biennial	January, 1927	(4)	500 per year
North Carolina	33	120	2	2	Biennial	January, 1927	60	4 per day
South Carolina	46	124	4	2	Biennial	January, 1927	None (5)	400 per biennium
Georgia	51	207	2	2	Biennial	June, 1927	60	7 per day
Florida	32	84	4	2	Biennial	April, 1927	60	6 per day
Kentucky	38	100	4	2	Biennial	January, 1926	60	$ 10 per day
Tennessee	32	99	2	2	Biennial	January, 1927	75	4 per day
Alabama	35	106	4	4	Quadrennial	January, 1927	50	4 per day
Mississippi	49	140	4	4	Biennial	January, 1926	None	750 per biennium
Arkansas	35	100	4	2	Biennial	January, 1927	60	6 per day (1)
Louisiana	39	100	4	4	Biennial	May, 1926	60	10 per day
Texas	31	147	4	2	Biennial	January, 1927	None	5 per day (6)
Oklahoma	44	107	4	2	Biennial	January, 1927	60	6 per day (6)
Ohio	35	130	2	2	Biennial	January, 1927	None	$1,000 per term
Indiana	50	100	4	2	Biennial	January, 1927	61	6 per day
Illinois	51	153	4	2	Biennial	January, 1927	None	3,500 per biennium
Michigan	32	100	2	2	Biennial	January, 1927	None	800 per biennium (1)
Wisconsin	33	100	2	2	Biennial	January, 1927	None	500 per term
MINNESOTA	67	130	4	2	Biennial	January, 1927	90	1,000 per biennium
Iowa	50	108	4	2	Biennial	January, 1927	None	1,000 per biennium
Missouri	34	150	4	2	Biennial	January, 1927	70	5 per day
Kansas	40	125	4	2	Biennial	January, 1927	None	3 per day
Nebraska	33	100	2	2	Biennial	January, 1927	None	800 per term (1)
NORTH DAKOTA	49	113	4	2	Biennial	January, 1927	60	5 per day
South Dakota	45	104	2	2	Biennial	January, 1927	60	5 per day

Montana	54	199	4	2	Biennial	January, 1927	60	$ 10 per day
Idaho	44	65	2	2	Biennial	January, 1927	60	5 per day
Wyoming	25	60	4	2	Biennial	January, 1927	40	12 per day
Colorado	35	65	4	2	Biennial	January, 1927	90	1,000 per biennium
New Mexico	24	49	4	2	Biennial	January, 1927	60	5 per day
Arizona	19	47	2	2	Biennial	January, 1927	60	7 per day
Utah	20	55	4	2	Biennial	January, 1927	60	4 per day
Nevada	17	37	4	2	Biennial	January, 1927	60	10 per day
California	40	80	4	2	Biennial	January, 1927	(7)	100 per month during term
Oregon	30	60	4	2	Biennial	January, 1927	40	3 per day
Washington	42	97	4	2	Biennial	January, 1927	60	5 per day
Alaska	8	16	4	2	Biennial	March, 1927	60	$ 15 per day
Hawaii	15	30	4	2	Biennial	February, 1927	60	600 per biennium (1)
Porto Rico	19	39	4	4	Biennial	February, 1927	60	7 per day (8)
Philippine Islands	24	92	6	3	Annual	October, 1927	100	2,000 per year for senators 1,500 per year for reps.

Democratic legislatures in Roman; Republican in *Italics;* Non-Partisan in SMALL CAPS.

(1) Additional salary allowed for extra sessions.
(2) Democratic Senate; Republican House.
(3) Can be extended 30 days by $3/5$ vote.
(4) Split session; first part 15 days, recess 30 days, second part 45 days.
(5) No additional compensation to be allowed after 60 days.
(6) For 60 days; $2 per day thereafter.
(7) Split session; first part 30 days, recess 30 days, no limit to second part.
(8) For 90 days; $1 per day thereafter.

V. STATE AND COUNTY GOVERNMENT

STATE JUDICIARY

State	Highest State Court				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary
Maine	Supreme Judicial Court	8	7	Gov. and Council	$ 5,000
New Hampshire	Supreme Judicial Court	5	(a)	Gov. and Council	6,000
Vermont	Supreme Court	5	2	Legislature	5,500 5,000
Massachusetts .	Supreme Judicial Court	7	(b)	Gov. and Council	12,500 12,000
Rhode Island..	Supreme Court	5	(c)	Legislature	9,000 8,000
Connecticut ..	Supreme Court of Errors	7	8	Gov. and Legislature	9,500 9,000
New York.....	Court of Appeals	7	14	Elected	$14,200 13,700
New Jersey ..	Court of Errors and Appeals	16	7	Gov. and Senate	19,000 18,000
Pennsylvania .	Supreme Court	7	21	Elected	18,000 17,500
Delaware	Supreme Court	6	12	Gov. and Senate	7,500 7,250
Maryland	Court of Appeals	8	15	Elected by Districts	8,500
Virginia	Supreme Court of Appeals	5	12	Legislature	5,200 5,000
West Virginia.	Supreme Court of Appeals	5	12	Elected	8,000
North Carolina	Supreme Court	5	8	Elected	4,000
South Carolina	Supreme Court	5	10	Legislature	3,900
Georgia	Supreme Court	6	6	Elected	7,000
Florida	Supreme Court	5	6	Elected	6,600
Kentucky	Court of Appeals	7	8	Elected by Districts	$ 5,000
Tennessee	Supreme Court	5	8	Elected	5,750
Alabama	Supreme Court	7	6	Elected	6,500
Mississippi ...	Supreme Court	6	8	Elected by Districts	6,500
Arkansas	Supreme Court	5	8	Elected	4,000
Louisiana	Supreme Court	7	14	Elected	8,000
Texas	Supreme Court	3	6	Elected	6,500
Oklahoma ...	Supreme Court	9	6	Elected	6,000
Ohio	Supreme Court	7	6	Elected	$ 9,000 7,833
Indiana	Supreme Court	5	6	Elected	7,500
Illinois	Supreme Court	7	9	Elected by Districts	15,000
Michigan	Supreme Court	8	8	Elected	10,000
Wisconsin ...	Supreme Court	7	10	Elected	9,000 8,500
Minnesota	Supreme Court	5	6	Elected	7,500 7,000
Iowa	Supreme Court	7	6	Elected	6,000
Missouri	Supreme Court	7	10	Elected	7,500
Kansas	Supreme Court	7	6	Elected	6,000
Nebraska	Supreme Court	7	6	Elected	7,500
South Dakota.	Supreme Court	5	6	Elected	3,000
North Dakota.	Supreme Court	5	6	Elected	5,500
Montana	Supreme Court	3	6	Elected	$ 6,000
Idaho	Supreme Court	5	6	Elected	5,000
Wyoming	Supreme Court	3	8	Elected	5,000
Colorado	Supreme Court	7	10	Elected	5,000
New Mexico...	Supreme Court	3	8	Elected	6,000
Arizona	Supreme Court	3	6	Elected	5,000
Utah	Supreme Court	3	6	Elected	5,000
Nevada	Supreme Court	3	6	Elected	6,000
California	Supreme Court	7	12	Elected	8,000
Oregon	Supreme Court	7	6	Elected	5,250
Washington ..	Supreme Court	9	6	Elected	6,000

(a) Until 70 years of age. (b) During good behavior. (c) Until removed by the legislature.

State	Other State Courts				
	Name of Court	No. of Dists.	No. of Judges	Term (years)	How Chosen
Maine	Nisi Prius	..	..	..	....
	Superior Courts in 2 counties	..	4	7	Gov. and Council
New Hampshire	Superior Court	10	5	(a)	Gov. and Council
Vermont	County Courts	14	6	2	Legislature
Massachusetts	Superior Court	..	30	(b)	Gov. and Council
Rhode Island	Superior Court	..	7	(c)	Legislature
	District Courts	12	13	3	Legislature
Connecticut	Superior Court	8	15	8	Gov. and Legis.
	Courts of Common Pleas in 5 counties	5	8	4	Gov. and Legis.
New York	Appellate Division	4	25	..	....
	Supreme Court	9	111	14	Elected
	County Courts	..	..	6	Elected
New Jersey	Chancery Court	..	11	7	Gov. and Senate
	Supreme Court	9	9	7	Gov. and Senate
	Circuit Court	6	10	7	Gov. and Senate
	District Courts	31	31	5	Gov. and Senate
Pennsylvania	Superior Court	5	7	10	Elected
	Courts of Common Pleas	..	..	10	Elected
Delaware	Chancellor	..	..	12	Gov. and Senate
Maryland	Circuit Courts	8	23	15	Elected
Virginia	Circuit Courts	33	33	8	Legislature
West Virginia	Circuit Courts	23	24	8	Elected
North Carolina	Superior Court	20	20	8	Elected
South Carolina	Circuit Courts	14	14	8	Legislature
Georgia	Court of Appeals	3	6	6	Elected
	Superior Court	33	38	4	Elected
Florida	Circuit Courts	18	18	4	Gov. and Senate
	County Courts	..	..	4	Elected
Kentucky	Circuit Courts	36	43	6	Elected
Tennessee	Court of Civil Appeals	5	23	8	Elected
	Chancery Court	13	15	8	Elected
	Circuit Courts	19	24	8	Elected
	Criminal Court	8	8	8	Elected
Alabama	Court of Appeals	..	3	6	Elected
	Circuit Courts	21	35	6	Elected
Mississippi	Chancery Courts	10	10	4	Elected
	Circuit Courts	17	17	4	Elected
Arkansas	Chancery Courts	12	12	6	Elected
	Circuit Courts	18	21	4	Elected
Louisiana	Circuit Courts of Appeals	4	9	8	Elected
	District Courts	25	29	4	Elected
Texas	Court of Criminal Appeal	..	3	6	Elected
	Courts of Civil Appeals	10	30	6	Elected
	District Courts	..	..	4	Elected
Oklahoma	Criminal Court of Appeals	3	3	6	Elected
	District Courts	29	44	4	Elected
Ohio	Courts of Appeal	9	27	6	Elected
	Courts of Common Pleas	..	..	6	Elected
Indiana	Appellate Courts	2	6	4	Elected
	Circuit Courts	71	71	6	Elected
	Superior Courts in 11 counties	..	19	4	Elected
Illinois	Courts of Appeal	4	15	..	Elected
	Circuit Courts	18	71	6	Elected
	County Courts	..	..	4	Elected
Michigan	Circuit Courts	40	61	6	Elected
Wisconsin	Circuit Courts	20	25	6	Elected
Minnesota	District Courts	19	57	6	Elected
Iowa	District Courts	21	64	4	Elected
Missouri	Courts of Appeal	3	9	12	Elected
	Circuit Courts	38	67	6	Elected
Kansas	District Courts	39	45	4	Elected
Nebraska	District Courts	18	34	4	Elected
South Dakota	Circuit Courts	18	18	4	Elected
North Dakota	District Courts	15	15	4	Elected

(a) Until 70 years of age. (b) During good behavior. (c) Until removed by the legislature.

STATE JUDICIARY (*continued*)

State	Other State Courts				
	Name of Court	No. of Dists.	No. of Judges	Term (years)	How Chosen
Montana	District Courts	18	27	4	Elected
Idaho	District Courts	11	16	4	Elected
Wyoming	District Courts	7	7	6	Elected
Colorado	District Courts	14	25	6	Elected
	County Courts	..	..	4	Elected
New Mexico	District Courts	9	9	6	Elected
Arizona	Superior Courts	14	18	4	Elected
Utah	District Courts	7	15	4	Elected
Nevada	District Courts	10	11	4	Elected
California	Courts of Appeal	3	9	12	Elected
	Superior Courts	58	103	4	Elected
Oregon	Circuit Courts	20	26	6	Elected
Washington	Superior Courts	39	59	4	Elected

COUNTY OFFICERS

State	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
Maine	16	3		E	E	E	A	E	E	x	E			E				
New Hampshire	10	3		A	E	E	A	A	E	x	E	A	E	E		E	A	A
Vermont	14	x	E	d	E	E		A	A	A	E	A		A				
Massachusetts	14	3		A	D	E	x	E	E	x	E			E				
Rhode Island	5	None				A		A										
Connecticut	8	3A	s	d	A	E	A	A				A		A				A
New York	62	Var.	E	E	E	E	E	x		E	s	s		E		d	A	A
New Jersey	21	Var.	A	A	A	E	E	x		E	s	A		A	A	A	s	A
Pennsylvania	67	3	E	E	E	E	E	E	E	A	E	E	E	E	E	E	s	A
Delaware	3	3–7		E		E	E	E	E	x	E			E	A	A	A	A
Maryland	24	3–7		E	E	E	A	E	E	A	x	A	A	E	E	A	A	A
Virginia	100 23(a)	3–8		x	E	E	A	E		E	x			E	A	A	A	A
West Virginia	55	3			E	E	A	E		E			E		E	E	A	A
North Carolina	100	3–5			D	E	E	E		x	E			E	E	A	A	A
South Carolina	46	Var.		E	D	E	E	E		x	s	A		E		E		A
Georgia	161	3–5	sE	E	D	E	E	E		E	E		A	E	E	E	s	A
Florida	61	5	E	x	D	E		E					E	E	E	E		A
Kentucky	120	3–8	E	x	E	E	E	E		E		sA	E	A	E	A	sA	sA
Tennessee	95	3	E	x	D	E	A	E		x	E	x	s	E	A	A		A
Alabama	67	2–7	x	E	D	E	E	E			x		E	E	A	E		A
Mississippi	82	5			E	E	E	E				E	E	E	E	E	A	A
Louisiana	64(b)	Var.			E	E	E	E		E	x		E	A	A	A		A
Texas	254	3	E	x	E	E		E		E	x	E	E	E	E	E	A	A
Oklahoma	77	3	E	x	E	E	x	E		E	x		E	E	E	E	x	A
Arkansas	75	Var.	E	x	D	E	E	E		E	x		E	E	E	A		
Missouri	114	3		E	E	E	E	E		E	s	s	E	E	E	E		A

E, an elective county office. A, an appointive county office. s, a county office in some counties. x, duties performed by some other officer. D, elected or appointed for district larger than a county. d, elected or appointed for district smaller than a county. Var., number varies in different counties.
(a) Cities. (b) Parishes.

COUNTY OFFICERS (*Continued*)

State	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
Ohio	88	3	E	E	E	E	E	E		E		E	A	E	E	A		
Indiana	92	3, 7(c)	s	s	E	E	E	E			E	E	E	E	E	A	A	A
Illinois	102	Var.	E	s	E	E	E	E		E	E	x	s	E	E	E	A	
Michigan	83	Var.		E	E	E	E	x		E	E	s		E	E	E	A	
Wisconsin	71	Var.	E	E	E	E	E	E		E	E	x	E	E	E	E	A	A
Minnesota	87	5–7		E	E	E	E	E		x	E	E	A	E	E	E		A
Iowa	99	3–7			E	E	E	E		x	E	E		E	A	A	A	
Kansas	105	3	E	E	E	E	E	E		E	E	A		E	E	E	A	A
Nebraska	93	Var.	E	x	E	E	E	E		E	s		E	E	E	E		
South Dakota	69	1–5	E	x	E	E	E	E		x	E	E	s	E	E	E		A
North Dakota	53	3–5	E	E	E	E	E	E		x	E	E	s	E	E	E		A
Montana	54	3			E	E	E	E		E	E	E	E	E	E	E		A
Idaho	44	3		E	E	E	E	E		x	x	x	E	E	E	E		
Wyoming	21	3		x	E	E	E	s		E	x		E	E	E	E		A
Colorado	64	3–5	E	x	D	E	E	x		E	x		E	E	E	E	x	x
New Mexico	31	3		E	D	E	x	x	E	E	x		E	E	E	E		x
Arizona	14	3	E	E	E	E	E	E		s	E		E	E	E	E		A
Utah	29	3			E	E		x		E	E	s	E	E	E	E		
Nevada	17	3		x	E	E	x	x		E	E	E	E	E	E	E		
California(e)	58	3–5	E	x	E	E	E	A		E	s	E	E	E	E	E		sA
Oregon	36	3		x	D	E	E	x		E	s	E	E	E	E	E		A
Washington	39	3		x	E	E	E	x		E	x	E	E	E	E	E		A

E, an elective county office. A, an appointive county office. s, a county office in some counties. x, duties performed by some other officer. D, elected or appointed for district larger than a county. Var., number varies in different counties.

(c) 3 county commissioners; 7 members in the county councils. (e) In Los Angeles County, the most populous county in California, the "short ballot" has been adopted. The only county officers elected by popular vote are the board of supervisors, auditor, district attorney, and assessor. All others are appointed by the board of supervisors.

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By Roger H. Wells

Assistant Professor of Politics, Bryn Mawr College

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DIVISION VI
MUNICIPAL GOVERNMENT

EXPANSION OF CITIES

By Robert T. Crane
Professor of Political Science, University of Michigan

City growth is a subject which cannot be handled in precise terms for a given year. Annual statistics in this field are largely lacking, are for the most part merely estimates, often do not coincide with the calendar year, and are usually available only long after its close. Owing to this lack of statistical data, any generalization on municipal expansion in 1925 will probably apply as well to other years near that date.

Estimates of Population.—Population figures issued by the Bureau of the Census as of July 1 each year for individual cities are avowedly estimates. They are calculated mechanically by adding each year one-tenth of the increase during the preceding census decade except for additions allowed to cities that have annexed territory. From 1910 to 1920, the rate of increase of the total city population of the United States was on the average 2.5 per cent. yearly. When the Bureau sees reason to believe that the figures resulting from application to a particular city of its last decennial rate are materially inaccurate, they are omitted. When the results of a local census are available, these are substituted by the Bureau. As a rule, the estimates are conservative, since growth has shown constant if slight acceleration.

Effect of Immigration Laws.—How far the restriction of immigration into the United States is affecting the growth of cities must remain problematical until the actual count of population in 1930. The present wave of immigration from Mexico and from Canada would indicate that the restriction on other countries has made itself strongly felt in 1925; yet in view of the large proportion of growth normally accruing through birth within the cities and through migration from rural districts, which rests upon fundamental causes involved in the modern industrial system and exerting a very constant force of attraction, decreased immigration from abroad seems likely to lower only the rate of acceleration from one census period to another and not to lower the absolute rate established during the decade in which occurred the World War. The mechanical method of adding each year one-tenth of the gain during the preceding decade gives results for 1925 that are probably even nearer the mark than usual.

Total Urban Population.—It is significant, therefore, that the government rule, if applied to the aggregate urban population of the United States, would give an estimated increase during 1925 of some 6,700,000 souls, raising the total from 54,304,603 in 1920 to approximately 61,000,000 in 1925. It is to be noted, further, that these figures include only the inhabitants of incorporated places and omit that part of the urbanized population which overflows the legal boundaries. Nowhere is there, or has there ever been, so huge an urban population in one country.

Rank of Cities.—A special census in Detroit gives that city a population of 1,242,044, and makes it the fourth in the United States to pass officially the million mark. Cleveland has almost reached a million. There have been seven additions to the so-called great cities—*i.e.*, those with a population of 100,000. These are Flint, Michigan; Tulsa, Oklahoma; Canton, Ohio; El Paso, Texas; Tacoma, Washington; Lynn, Massachusetts, and Utica, New York. They raise the total of this class from sixty-eight in 1920 to seventy-five. This is three times the whole number of great cities in all the western or European world when the American Union was founded. Nine other cities are close to this class; four of these are so doubtful that the Bureau of the Census has published no estimates of their population.

The urban character of the United States is undoubtedly more marked in 1925 than in any previous year. Each successive census has shown in the cities a larger proportion of the total population of the country. From 3 per cent. in 1790, city dwellers had increased at the time of the last census to 51.4 per cent., so that by 1920 the United States had acquired a predominantly urban civilization. The rate of this increase has varied only within one or two per cent. from census to census, and there is no reason to believe that it has fallen measurably below the slightly more than one-half of 1 per cent. shown during the last decade. It may therefore be conservatively estimated that in 1925 54 per cent. of the population of the country is resident in cities as against 46 per cent. in rural districts. It is to be noted, also, that the urban character of the United States is heightened by the hundreds of thousands of people who, though technically resident in the country areas, do little more than sleep there, and spend a large proportion of their time, often daily, in occupations and interests within the cities.

Changes in corporate area are poorly reported. Even the fact that a change has occurred is difficult to run down, the more so that annexation is now frequently left to local plebiscites without the necessity of action by the state legislature in individual cases.

During the last census decade, the areas incorporated in cities increased at the rate of 2 per cent. per annum. This is a little slower than the population movement. The arbitrary factor in annexation frees this rate to some extent from the steadying influence imposed on the population rate by the operation of such continuous causes as the demands of the modern industrial system. It is therefore a less reliable basis for estimates. If applied, it would indicate an extension in 1925 of 65,000 acres, or a total area at this time of 3,700,000 acres, or 5,800 square miles. Some sixty million people live on these six thousand square miles, 54 per cent. of our population on one-fifth of 1 per cent. of our territory, the most stupendous pyramiding of population the world has ever seen.

Metropolitan Districts.—These statistics of incorporated places do not even yet give a complete picture of the extent to which the population of the country has become agglomerated in centers. There are many clusters of incorporated places, for which the figures appear separately, but which yet constitute continuous urban areas. There are in the United States twenty-nine of these metropolitan districts with an aggregate population of as many millions; or, disregarding legal boundaries and looking only at the fact of urbanization, twenty-nine cities averaging a million inhabitants.

Effects on Government.—City expansion is the core of the great problem of the modern city. The massing of huge populations on small areas with the attendant congestion, the loosening of family and neighborly interest, intimacy and control, the lack of habituation of a large part of the people to urban life, the absence of opportunity for the indulgence in customary occupations of leisure, the great divergencies of wealth which separate city dwellers, the added menaces to health, to life, and to property, the extraordinary demands of traffic and of transportation,—create unprecedented physical and social problems. Thus there fall upon the governments of the cities tasks of unparalleled and ever-growing complexity and magnitude, which call for the frequent assumption of new burdens and for the elaboration of organization. Expansion not only of population and of area, then, but also of government both in its activities and in its organization, characterizes the American city of to-day.

Metropolitan Functions.—As a consequence of this steady pressure of demand for increased services, city government has attained a degree of development in 1925 never before reached. Particular cities that have not before exercised such functions are now undertaking, one the collection of garbage or of other wastes or the incineration or other reduction of refuse or sewerage, another the supply of gas or electricity, another the care of the sick through public nurses or the medical examination of school children, and yet another the systematic planning of city development or zoning. Many cities have recently established camping grounds to accommodate automobile tourists. A number are contemplating public aviation fields. One, at least, has undertaken permanently the sale of coal and of gasoline in order to hold prices at reasonable levels. The expansion of old functions goes incessantly on together with the addition of new ones adopted from other communities or entirely novel. The cumulative effect of these changes is enormous.

City Finance.—All of this growth, of population, area, and governmental activity, is most faithfully reflected by the financial operations of cities. A century ago New York City had just passed the 100,000 population mark. At that time it expended a dollar per capita; in 1925 this figure had grown to $67. A century ago its annual budget was $100,000; in 1925 it was $400,000,000. The value of money has changed, indeed, but the differences in these figures is essentially due to growth; and what is true of New York City is true in progressively declining measure of the smaller cities.

It has been well said that the growth of the cities is the most remarkable social phenomenon, and constitutes the greatest social problem, of the modern age.

ZONING AND CITY PLANNING

By Robert T. Crane
Professor of Political Science, University of Michigan

CITY PLANNING

City planning maintained in 1925 the steady progress of recent years. The name, indeed, is hardly longer appropriate; for on the one hand planning is being undertaken by communities too small to be termed urban; and on the other has extended far beyond the limits of even the largest cities. The National Conference on City Planning reported some 300 commissions in existence at the beginning of the year, most of which were active, although it must be recognized that many others have only a formal existence. Numerous planning reports have been published during the year. Mandatory provisions for the establishment of a city plan have been written into virtually every new charter. Popular support has steadily grown. Significant backing has come from various organized national groups, especially the real estate dealers and chambers of commerce. The Department of Commerce at Washington through the establishment of the Division of Housing and Building, and of the City Planning Committee of the National Conference on Street and Highway Safety called by Secretary Hoover in December, 1924, has done much to promote city planning during the year.

Basis.—A city plan is a program of studied and permanent development of the physical conditions of community life in the interest of efficiency, of health, of convenience, and of beauty. It may cover the whole physical development of the community whether development is by private or by governmental action, whether development is of private or of public property. For the regulation of the action of individual property owners, there is a recognized special name—zoning. Two principal divisions, therefore, of city planning must be distinguished: city planning in a narrow sense which relates to the activities of public and semi-public agencies, and zoning, which relates to the activities of individuals. City planning in this narrower sense, is of course often very far from complete. Its most common features are provisions for streets, including the location on, above, or below them, of the various utilities and agencies of transportation, and the routing of traffic; for terminals, including ports, and railroad rights-of-way and their connections; for parks and boulevards and other areas of recreation; and for the grouping and style of public buildings. The city plan, even though adopted by an official planning commission, is usually without legally coercive authority. It is advisory only and may be ignored by other city officers. Containing often an extensive and expensive program of development, the plan is usually designed to cover a number of years; as conditions can be foreseen with less and less accuracy in the future, the plan must have a degree of flexibility corresponding to the period which it is designed to cover.

Harrisburg.—In 1925, the plan prepared for Harrisburg, Penna., offers an excellent illustration of a proposed street lay-out based on traffic studies. It provides for discontinuance of the present system of routing all trolley lines through one square in the center of the business district; for re-routing these lines around the edge of this district; for abolishing within it the parking of automobiles; for the widening and extension of several streets to provide more adequate approaches and thoroughfares; and for the opening of one new street for a short distance through blocks on which buildings now stand. Its execution is spread over a period of ten years.

Cincinnati.—A plan of a general type issued in 1925, and the outstanding feature of city planning in this year, is that of Cincinnati, Ohio. This is noteworthy as the first plan to be officially adopted in a large city. State law and city charter alike give to the planning commission the power to fix the location, size, and character of all public buildings and areas, the lay-out of all utilities and public services, and the development of all streets and other means of circulation. This power the commission has exercised, and the plan thereby acquires exceptional legal authority. No deviation by other authorities of the city is permitted by law unless approved by the planning commission; or unless, upon its disapproval by the commission, it is authorized by two-thirds of the full membership of the city council after a public hearing, as provided by the charter, and, as stipulated by the state law, has in addition the approval of the department head concerned. This last provision adds materially to the authority of the commission, for it has five *ex officio* members out of seven—including the mayor, the director of public service, and the three members of the park board, officials who represent the departments most likely to be affected by the plan. The *ex officio* membership of the commission is obviously an important factor. The plan is noteworthy also on account of the unusual strength of its financial provisions. It is on this side that city planning has probably in general been weakest. The Cincinnati plan covers a period of fifty years, and has distributed the work to be done in detail over five-year periods with a fairly even spreading of the cost. The methods of financing have received very careful attention. The plan embraces a three-mile belt around the city in addition to the corporate area,—a growing practice. It thus extends into Kentucky, where it has of course no authority. The situation in the legal belt within Ohio is not clear. Apparently the authorities outside the city cannot be compelled to execute the plan, nor on the other hand, under the law can they act in disregard of it.

The plan includes zoning already effective since April, 1924. It covers belt lines connecting railways, routing of through freight around the city, systematized traffic regulation, development of the waterfront for both recreation and utility, barge canals and basins, reclamation, parks, and playgrounds, schools, and other public properties. The document is a bulky one of some 125,000 words with numerous maps and other illustrations. Lengthy treatment is given all subjects covered by the adopted regulations. The plan, on which the City Planning Commission has worked for three years with the aid of the Technical Advisory Corporation has been framed with the collaboration and approval of every city department and every public utility affected by it; and it has very wide public support, its preparation having been initiated and financed by the United City Planning Association, which is composed of representatives of thirty important organizations of the city.

Regional Planning.—Planning has passed from the city into the region. It now embraces in a single program as many as three score neighboring municipalities. Work is proceeding steadily in the Boston and New York Regions. In the Chicago area, in addition to the formulation of a new central plan, an effort is being made to bring together immediately the plans that already exist in many of the communities included in this region. The Niagara Falls Region and the Connecticut Valley Region have both received state legislative recognition. A committee has been formed to promote planning for the area around Washington, D. C. The most important step in this direction taken in 1925, however, centers in San Francisco. After preliminary work had been done by the city planning section of the Commonwealth Club of that city, the Regional Plan Association was organized. This body is composed of cities, counties, civic organizations, and individuals. It is financed entirely by fees and contributions. It intends to develop a comprehensive plan for the major portion of nine counties, and to coördinate the present planning activities of nearly sixty municipalities. The region extends fifty miles to the north and as many to the south of San Francisco, and thirty miles to the east beyond San Francisco Bay. The total area is 4,000 square miles, with a population of a million and a half. Organization has been completed and surveys are under way. The plan will embrace port developments; highways; air, rail, and water transportation and terminals; rapid transit connections; bay protection from sewerage and refuse; flood control; water supply; and regional zoning.

Another type of planning is narrowly limited in scope. This is well represented in 1925 by the plan for tying the War Memorial recently erected in Baltimore, Md., to the city hall and other public buildings by a parked and terraced square flanked by façades of uniform height and similar design and material.

City planning has received endorsement by legislative action in twenty-four states. In several of them, similar recognition has been given to county and regional planning.

ZONING

Expansion of the System.—The zoning of cities has proceeded more rapidly throughout the United States in 1925 than ever before. Figures compiled by the Division of Building and Housing of the Department of Commerce and Labor at Washington as of July 1, show 366 zoned municipalities with an aggregate population of 26,000,000. The contrast with 48 cities and 11,000,000 population in September, 1921, indicates both a seven-fold increase in the number of zoned municipalities within the short period of four years, and an addition of 130 per cent. in population. The relatively small increase of population in comparison with the number of places is due to the extension of the movement to smaller communities with the zoning of virtually all of the great cities. A number of villages have been zoned during the past year. Forty-six places of all classes were zoned during the first six months of 1925,—33 of less than 25,000 population, 10 of 25,000 to 100,000, and 3 of over 100,000—

Denver, Colo.; Hartford, Conn., and New Bedford, Mass. Another city of 100,000, Duluth, Minn., was added to the list in October. Incomplete reports since July 1 indicate a total of some 400 zoned municipalities of all classes by the end of the year, and the number of people living within zoned areas to be approximately one-half the whole urban population of the United States. Many places report ordinances under way. Advocates of zoning are particularly active in Massachusetts, New York, Pennsylvania, Connecticut, and Indiana. At the beginning of the year Pennsylvania had 72 zoned muncipalities, New York, 56; California, 38; Illinois, 36; Massachusetts, 24; Ohio, 21.

Statutes.—State-wide enabling acts granting to municipalities the right to zone have been passed or put into effect during the year by Arizona, Connecticut, Florida, Idaho, Maine, New Hampshire, and Utah. The model state zoning enabling act prepared by the advisory committee on zoning of the Department of Commerce is in general closely followed by the new state legislation. Thirty-seven of the forty-eight states, therefore, now authorize zoning. The Maine act covers only cities of over 35,000 population, and that of Idaho only cities of the first class. New York by an amendment to its statute has authorized the regulation of the density of population. Minnesota passed an enabling act for the establishment of residential districts by eminent domain. A South Dakota law authorized owners of real property to enter into zoning agreements.

Extent.—Zoning has not in all cases been comprehensive. Complete zoning regulates the use of land, the use, height and area of buildings, and the density of population. Generally, the use, height, and area of buildings have been regulated; but in about two-fifths of the municipalities, regulation is attempted only of use, or of use and height, or of use and area.

Obstacles to the extension of zoning have been encountered as usual in the courts rather than in the legislative bodies. Zoning depends upon a grant of police power by the state legislature to the city. The legislature can grant only power which it itself possesses; and the police power in particular is carefully limited by the courts under the due process clauses to protect the individual against deprivation of property without compensation. Zoning must in general rest on considerations of health, safety, morals, or general welfare—a term which the courts have studiously refrained from defining. Zoning, also, must not be arbitrary; that is to say, it must be flexible allowing for reasonable variances, as where a line between two districts runs through an individual property. State legislation granting to municipalities the power to zone, has therefore almost invariably been held constitutional, as indeed have usually the local ordinances enacted under their authority. It is in their application to specific properties that the provisions of these laws have so frequently been declared unconstitutional by the courts.

New Jersey Test Cases.—Interest and controversy have centered in 1925 largely on the decisions of the courts of New Jersey. Although zoning has not been held unconstitutional in this state, construction and use have been permitted in case after case in derogation of ordinances and decisions of zoning officials. Most of the cases have followed the precedent set in 1924 in the Nutley case in which the erection of a grocery was permitted in an area restricted to residences. The courts have permitted construction in 1925 contrary to ordinances because of lack of any existing development of the contiguous property, in one case an area of five blocks, and in another of several hundred feet; the construction of business buildings, and their use for manufacturing, in residential areas and in contravention of established building lines, and of garages in a residential district where the nearest dwelling was 150 feet away. Writs of mandamus, also, have been issued without compelling the aggrieved party to resort to the boards of adjustment recently established by an amendment to the state law to hear appeals from the decisions of zoning officials. On the other hand, in one case denial of a permit for erection of a garage within ten feet of a residence was upheld as "quite within the police power," and in another a mandamus was refused because the remedy of appeal to a board of adjustment had not been exhausted. An analysis of decisions rendered during the year indicates that the lower courts in New Jersey are not in accord on the question whether it is proper any longer to issue writs of mandamus to override denials of building permits by zoning officials or whether such denials may be brought before the courts only on writs of certiorari after unsuccessful appeals to boards of adjustment. The point is important, for as Edward M. Bassett has noted in an admirable article (Fundamentals of American Zoning, American City, 23: 178-181, Aug., 1925) in states in which writs of mandamus are employed zoning ordinances are being constantly undermined, and in those in which cases come before the courts only from reviewing boards on certiorari zoning is being constantly more firmly established. A decision is awaited from the supreme court of New Jersey on this point. It appears also from recent cases that it is the regulation of use that results so often in invalidation, and that other regulation is not held invalid.

Maryland and Massachusetts.—In Maryland, a decision early in the year made it apparent that the Baltimore zoning ordinance would not be upheld. The court said that the ordinance worked a deprivation of property without compensation in forbidding the conduct of a tailoring establishment in a residential district and bore no substantial relation to the health, morals, welfare or comfort of the community. Although this statement was obiter, the case being decided on other grounds, and was countered by a strong dissent, it seemed conclusive as to the attitude of the court. An interim ordinance hastily passed, pending new legislation or constitutional amendment, has, nevertheless, been since upheld by the court, and the situation is now regarded as satisfactory by proponents of zoning. The courts of Massachusetts have steadily led the way to a broader conception of the police power giving fuller scope to regulation under zoning ordinances.

Progress.—On the whole, the year 1925 has seen the judicial view, properly conservative in this matter, progressing about as rapidly as public opinion has been convinced that community control is reconcilable with individual property rights. The chief justice of New Jersey has recently so expressed himself as to lead to the anticipation of some change in the attitude of the judiciary of that state. The limitations of zoning to the basis of health, safety, morals, and welfare, of the community, has indeed not been removed; and esthetics remain barred, yet even here the possibility of a less rigorous judiciary interpretation of the law has been voiced by at least one judge.

Official planning of undeveloped areas has been more widely undertaken during the year; but adequate legal means of enforcing compliance by property owners are still lacking. A statute employing the police power for this purpose has been proposed and drafted by Edward M. Bassett and Frank B. Williams.

Recent literature of value in the fields of city planning and zoning includes:

Cincinnati City Plan Commission, *The Official City Plan of Cincinnati.*

Zoning Technique. Mass. Department of Public Welfare, Zoning Technique.

Bassett, E. M.—*Zoning Practice in the New York Region.*

U. S. Department of Commerce, *Bulletin of Zoning Statistics.*

City Planning. An organ established in 1925 by the American City Planning Institute and the National Conference on City Planning.

National Municipal Review.

American City.

ORGANIZATIONS FOR STUDY OF CITY GOVERNMENT

By Clinton Rogers Woodruff

Honorary Secretary of the National Municipal League

National Municipal League and the American Civic Association held their annual meetings in Pittsburgh, November 18 and 19 in conjunction with the National Association of Civic Secretaries, Governmental Research Conference, Proportional Representation League, Pennsylvania Civil Service Association as the guests of the Civic Club of Allegheny County on the occasion of its thirtieth anniversary. One of the distinguishing features of the meetings was the presentation of a dramatic masque, entitled "The Smith," embodying a graphic presentation of the development of civic affairs during the past generation. "Influencing public opinion," "planning and governing metropolitan regions" and "beauty in American life" were the outstanding topics of discussion.

After having held the presidency of the American Civic Association for over twenty years, Dr. J. Horace McFarland of Harrisburg has resigned on account of impaired health. Frederick A. Delano, to whom may be credited a long list of civic accomplishments, was elected to succeed Dr. McFarland as president of the Association. Frank L. Polk was reëlected president of the League, the Secretary of which is Dr. Harold W. Dodds, 261 Broadway, New York. The Secretary of the Association is Miss Harlean James, Union Trust Building, Washington, D. C.

Union of Canadian Municipalities held its 25th annual meeting in conjunction with the Union of Quebec Municipalities on the St. Lawrence River. Controller Plant, of Toronto, was elected President, and Samuel Baker, of London, Ontario, Secretary.

Association of American Municipal Organizations.—The secretaries of ten state leagues of municipalities organized the Association of American Municipal Organizations at Lawrence, Kansas, in December, 1924, to promote the exchange of methods, experiences and accomplishments of the state organizations and to promote the efficiency of their secretaries. The principal service rendered by the member organizations comes through the monthly news bulletin. Each secretary plans furnishing the national secretary with a report of his league's accomplishments and any plans for new or extended services. These reports form the principal data contained in the bulletin. Each organization will also send to the national headquarters duplicate copies of all books, pamphlets, circulars, questionnaire forms and other publications and literature, which will be reviewed in the monthly bulletin. Any secretary may borrow any of this material from the national headquarters. It is also a part of the organization scheme that each member organization exchange the major publications with other members. The headquarters of the League of Kansas Municipalities at the University of Kansas was selected for the secretariat of the organization, and John G. Stutz was named Executive Secretary. Morris B. Lambie, of the Minnesota League of Municipalities, Minneapolis, Minn., was elected President. The second meeting was held at Chicago in December.

State Organizations exist in the following states: California, Colorado, Florida, Illinois, Indiana, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin.

There are eleven provincial organizations in Canada.

American City Government League (Leo Kenneth Mayer, Brooklyn, Director) has been engaged in surveys of the municipal ownership and operation of electric light and power plants and prepared an answer under the caption of "Political Ownership and the Electric Light and Power Industry," to the report of the National Electric Light Association.

Citizens' Federal Research Bureau (Washington, D. C.) organized in February, 1924, for the immediate purpose of aiding in fixing the responsibility for corruption in the federal government disclosed about that time, has been organized upon a permanent basis as a "civic organization to investigate and improve administrative efficiency."

The executive secretary, Wallace M. Leonard, will direct the administrative work, while the legal staff of the Bureau is under the direction of J. Weston Allen, formerly attorney-general of Massachusetts, as general counsel.

This Bureau's plan of permanent organization includes an executive council, which will have "responsible direction of the Bureau and an advisory board of men and women, chosen from the country at large to interest and lead 'in promoting zeal, efficiency and probity in the public service.'"

The Bureau is now seeking to raise an annual budget of not less than $50,000 for the first three years. The prospectus of the Bureau reports its activities to date, among which has been the submission to the executive and administrative heads of information bearing upon the conduct of their departments; aid to congressional committees; obtaining evidence of grave offense in the enforcement of federal prohibition laws and examining into qualifications of those "being urged through political channels for appointment to the federal bench."

The Bureau aims to become the clearing house for information obtained by the civic organizations throughout the country, operating in the field of state and city administration.

American Society for Municipal Improvements met in Des Moines, Iowa, October 26-29, E. L. Dalton, of Dallas, Texas, presiding. Charles Carroll Brown, of Lakeland, Florida, the Secretary, retired after 14 years service as Secretary and C. W. S. Sammelman, 3817 Olive Street, St. Louis, was elected as his successor. T. Chalkley Hatton, of Milwaukee, was elected president for next year.

Association of American Municipal Associations (John G. Stutz, Lawrence, Kansas, Secretary) held its second annual conference at Chicago, Illinois, December 17 and 18, with Morris B. Lambie, of Minnesota, presiding.

International City Managers Association (John G. Stutz, Lawrence, Kansas, Secretary). The 12th annual convention met November 17, 18, 19, at Grand Rapids, Michigan. There were 150 registered delegates representing practically all the cities having the city manager plan of government.

C. Wellington Koiner, of Pasadena, Cal., presided. There were nineteen invitations for the 13th annual convention and it was firmly decided to hold the 1926 convention in Colorado Springs, during the month of September. Harrison G. Otis, City Manager of Clarksburg, West Virginia, who has attended all the conventions of the Association, and was for four years its Executive Secretary, was elected President, for the coming year. John N. Edy, of Berkeley, Cal., was elected First Vice-President; W. A. Holt, of New London, Conn., Second Vice-President; and C. W. Ham, of Pontiac, Michigan, Third Vice-President.

Harrison Foundation of Philadelphia created under the will of the late Thomas Shelton Harrison with an annual income of from $20,000 to $30,000 has appointed Clarence G. Shenton, Assistant director of the Philadelphia Bureau of Municipal Research, as director.

The Harrison Foundation is interested at the present time in three pieces of research. The first is the survey of the municipal court in which the Bureau is acting as the Foundation's agent. The second is a study of magistrates' courts; the third is a study of charitable trusts in Philadelphia, undertaken principally to find out whether there are any trustees in the city who are having difficulty in applying their funds to the purposes for which the trusts are created.

Philadelphia Bureau of Municipal Research reports that its outstanding accomplishments during the year have been the completion and publication of its report of Municipal Street Cleaning in Philadelphia and of its study entitled, "Philadelphia Government," a descriptive statement and chart showing the interrelationship of the five hundred or more local units of government. Among other activities listed are: the preparation of a card index of Philadelphia ordinances, running back to the year 1789, which has been completed; the continuation of its studies of the city's borrowing power, debt policies and related matters, upon which a report is being prepared. A report on employment conditions in the city government is under way. In coöperation with the mayor, the Bureau is studying the gas problem, the present lease of the city's gas works expiring in 1927. The Bureau maintains a library of twelve thousand books, pamphlets and periodicals on civic subjects, which is used by the public in its quest for information on these subjects.

CITY POLITICS

By Clinton Rogers Woodruff

Honorary Secretary of the National Municipal League

New York's New Mayor.—New York's quadrennial mayoralty campaign began early in the summer when the regular Tammany organization through its official leader with the backing of Governor Smith entered State Senator James J. Walker as a candidate for the Democratic nomination against Mayor Hylan. A vigorous and acrimonious primary fight was inaugurated, resulting in the defeat of the Mayor. Arrayed against the Mayor was practically every newspaper of the city with the exception of the Hearst press. His denunciation of the newspapers as servants of the "traction crowd" and of Wall Street was not intelligent as *The Outlook* pointed out, but it hardly warranted the treatment which the press gave him in this campaign. Weak and faulty as Mr. Hylan's administration of the city has been, it had not lacked certain merits.

Frank D. Waterman won an overwhelming victory in the Republican primaries and was Senator Walker's opponent. The result of the election was evident from the outset, Walker winning by a majority of over 400,000. Senator Walker's campaign backed as it was by the whole Tammany organization was based on the claim that as a State Senator Walker had been influential in giving to the city workmen's compensation; emergency rent laws; widows' pensions; soldiers' bonus; eight-hour working day; Sunday baseball; Sunday movies; five cent fare and many humane and progressive laws. Here was a record which, added to a lively and human personality and backed by all the force of Tammany proved to be invincible. The Republican organization in New York was poorly equipped for a fight with a body of trained political workers. It was the old story of the regular forces against an undisciplined body of casual workers.

Boston's Mayoralty Election.—Fundamentally, the Boston election was the result of three things: a bitter division in the ranks of the Democrats, the entry of a strong Republican candidate not of the "highbrow" variety, and finally, the adroit work of the Good Government Association, a body which is largely maligned, but still remains a powerful factor in Boston politics. Several Democrats came into the field and, of these, at least three had hopes of getting the G. G. A. endorsement because such endorsement has invariably gone to a Democrat during the past twenty years. They remained in the field until the time for withdrawal had expired, still cherishing the hope of an endorsement. Immediately after this time had expired, the G. G. A. came out with a strong endorsement of Nichols and this action, combined with strong Republican support, enabled him to win handily in a badly divided field. Each of the Democratic factions blames the other. As a Boston newspaperman expressed it, "There were too many mules in the same pasture." Discontent with Democratic rule had very little to do with it.

MUNICIPAL HOME RULE

By Clinton Rogers Woodruff

Honorary Secretary of the National Municipal League

HOME RULE IN NEW YORK

On July 6, the Appellate Division of the Supreme Court of New York rendered a unanimous decision in the case of *Browne vs. Board of Estimate*, declaring that the Home Rule Amendment to the State Constitution was null and void. Immediately after this decision, steps were taken to carry the case to the Court of Appeals. This Amendment was enacted by the Legislature in 1922, reenacted in 1923 and ratified by the people in November 1923. A Home Rule Enabling Act was passed in 1924 and various cities of the State established their municipal assemblies under it, more than two score cities in the State having passed at least two hundred local laws which were affected by this decision.

As finally ratified the Home Rule Amendment was the result of many years of struggle; as far back as the Constitutional Convention of 1867 the adoption of such an amendment was advocated, and in 1894 it was a live public question. Its passage has been hailed as an important reform, and the people had spoken decisively in favor of it. The Amendment itself has been complained of by some students of municipal government on account of its vagueness of phraseology, but it was regarded by thoughtful students as in many respects among the most logical and best thought out home rule amendments in the country. The experiment was important because of the size of the State and the number of cities affected by it.

The decision of the Appellate Division involved nothing with regard to the principle of home rule itself. The case turned on a constitutional question. The amendment was declared void because of an irregularity which the court found in the procedure by which it was submitted to the people. In 1922 the Home Rule Amendment was passed for the first time. At the same session there was passed for a second time an amendment to Article XII of the Constitution relating to the return of local bills to the clerk of the house in which they originated rather than to the house itself. This amendment was ratified by the people. The Court declared that this intervening amendment, though it only altered a section of the article of the Constitution which the Home Rule Amendment completely eliminated, was sufficient to nullify the then pending Home Rule Amendment. The Court also found that the Home Rule Amendment was not entered in full on the journals of the two houses.

This decision of the Appellate Division was promptly appealed to the Court of Appeals and was equally promptly overruled on September 2 when speaking for a unanimous court Chief Justice Hiscock issued the following announcement:

"First—That the so-called Home Rule Amendment of Article XII of the Constitution was properly and legally adopted and on January 1, 1924, became and now is a part of the Constitution.

"Second—That under the authority of the Constitution as thus amended the City Home Rule Statute (Chap. 363, Laws 1924) was legally enacted.

"Third—That consideration had not been completed of the question whether under said statute the City of New York was authorized to adopt laws providing for the municipal ownership and operation of bus lines and decision of that question, therefore, is reserved until the October session. That at that time a formal decision will be handed down with accompanying opinions."

This settles the major point raised by the decision of the New York Appellate Division last July. The Home Rule Amendment and the functioning of the New York City Municipal Assembly and other local legislative bodies is declared legal. The question whether the so-called Craig Bus Bills cover matters within the scope of municipal "property, affairs and government" the court reserves for later consideration as being less critically important.

HOME RULE ENCROACHMENTS IN OREGON

In January, the representatives from 25 cities of Oregon met in Portland to establish a League of Oregon Cities. The immediate occasion for the meeting was an appeal from one of the small cities for assistance from her sister cities in preventing the legislature from putting through a general law designed to give to the state traffic officers control over traffic policing in the smaller cities. This situation arose from complaints of autoists that many of the towns were overzealous in enforcing their traffic ordinances on speeding motorists. However, the larger cities, especially Portland, have also for some time felt the need for such an organization to combat encroachments of the state on the powers of the cities. Article XI of the State constitution provides, by an amendment of 1906, that "the Legislative Assembly shall not enact, amend or repeal any charter or act or incorporation for any municipality, city or town. The legal voters of every city and town are hereby granted power to enact and amend their municipal charter, subject to the constitution and criminal laws of the State of Oregon."

This clause is the basis for what has commonly been assumed to amount to a grant of home rule. During recent years, however, the legislature, supported by the supreme court, has gradually undermined the autonomy of the cities by the slightly indirect process of passing general laws, rather than specific amendatory acts, affecting the powers of municipalities.

One of the striking limitations of the powers of the city of Portland is the Tax Supervising and Conservation Commission, established in 1921. This commission, appointed by the governor, has the power and duty to survey all the estimates of the city commissioners, and, in the words of the law, "shall carefully consider the proposed budgets, approve, reject or reduce the same or any items therein, or, by unanimous vote of all the members of the commission, increase the same . . . upon the request in writing of the proper tax-levying board." This discretionary power in the hands of the Tax Supervising Commission is a source of friction, and, it is contended, leads to irresponsible government. In actual practice it allows the tax commission to pass upon matters of city policy, through its power of rejecting or reducing any items. This is illustrated by the refusal of the commission to grant the city's recent request for an added force of twenty-five policemen to combat the crime wave. There have been numerous complaints in regard to such matters as the reduction of salaries and the refusal of particular appropriations.

The supreme court has, in a number of decisions, held that the constitutional provision granting home rule does not prevent the legislature from passing such general laws, even though they do in fact radically modify the powers of cities in matters of predominantly local interest. The legislative committee of the League of Cities is endeavoring to secure the adoption of an amendment to the constitution which will further fortify the autonomy of the cities. The proposed amendment stipulates carefully that municipalities shall not be controlled by "general laws" in matters relating to "local, special and municipal legislation, and municipal affairs of every character in and for their respective municipalities."

CHICAGO AS A FREE STATE

A resolution has been introduced into the City Council, which was duly adopted requesting the Corporation Counsel to outline the proper legal procedure by which Chicago could separate from the state of Illinois and seek admission to the Union as another State.

CITY MANAGER GOVERNMENT

By Clinton Rogers Woodruff

Honorary Secretary of the National Municipal League

Kansas City Manager Plan.—On February 24, Kansas City adopted its Council-manager Charter by a vote of 37,504 to 8,827. The results of the first election under the new charter are at this writing (Dec. 15) undecided. Party names were not much referred to during the campaign; yet there was the keenest kind of partisan spirit manifest. The Republicans nominated Mayor Albert I. Beach for reëlection. He and his associates were known as the "Beach Group." This Beach Group had the prestige of the present successful administration. The Democrats nominated Ben Jaudon, the city treasurer and a popular man and he and his associates were known as the "Jaudon Group." On the first returns it appears that the Beach Group elected the Mayor and three councilmen and the Jaudon Group elected five councilmen, giving the control of the Council of nine to the latter. One of the Jaudon Group candidates for councilmen, George L. Goldman, received a majority of only 305 votes out of 114,000 cast. His election is being contested by the Beach Group in hopes of securing a fifth councilman and thus giving the Beach Group control of the Council. Nearly all of the candidates are said to be high grade citizens; but all are more or less animated by partisanship. Most of those elected are pledged to give the new charter a full and fair trial in letter and spirit. If the campaign pledges are adhered to, there will be a good council regardless of whether it is dominated by the Beach or the Jaudon Group. The Jaudon Group is also contesting the election of Mayor Beach who had only 548 majority.

Cincinnati Manager Plan.—This city adopted the new form in 1924, and has chosen Lieut. Colonel O. Sherrill of Washington, D. C., as its first city manager. He has been in charge of the Building and Grounds in the District of Columbia since the beginning of President Harding's administration.

Seattle Defeats City Manager Plan.—An amendment to the charter of Seattle, Washington, providing for a city manager form of government was defeated at the annual election, March 10, by 4,519 votes. The total vote cast for the amendment was 22,789; against it, 27,308; total vote cast at the election, 56,615; total registered voters, 118,210. These figures are significant of the interest of the voters in the movement. The existing city government and its 5,500 employees including 2,000 municipal street car employees were organized against the amendment. During the preparation of the city manager amendment and before it was finished representatives of the city's employees notified members of the Municipal League which sponsored the movement that if a clause in the proposed amendment, whereby the city manager had the final decision on dismissals of civil service employees, were eliminated, thus leaving the final decision in such cases with the civil service commission, the civil service employees would not oppose the amendment. This clause remained in, and the amendment had to undergo the strenuous opposition not only of the city employees' organization—but also of organized labor which strongly sympathized with that League.

City Manager of Pasadena Resigns.—C. W. Koiner, the City Manager of Pasadena, Cal., resigned his position on July 1 on a question of principle involving directly the fundamental basis of the manager form of government. Following the election of four new members of the Council known as the board of directors, an ordinance was prepared dividing the administrative organization into seven departments placing one member of the board in charge of each department. Under this plan the manager would have to secure the approval of the appropriate councilman before he could appoint or remove any employee in that department.

Mr. Koiner believed that this opened the gate to the spoils system and brought about a division of responsibility foreign to the manager plan. He very properly resigned and Pasadena has lost the services of a leader of the profession. It is unfortunate in the opinion of the Secretary of the City Managers Association that the city charter did not provide more specifically for the duties and powers of the manager. Under the old board of directors, the city enjoyed the benefits of the plan in its true form. The board remained a policy determining body; the manager was in charge of administration and was directly held responsible therefor.

Other Places.—Cape May, New Jersey, has the distinction of being the first city to adopt the manager plan in New Jersey under the new optional charter law. The vote was decisive, many citizens feeling that the old hit-and-miss arrangement was reacting unfavorably against the city's prosperity as a summer resort.

Rochester, N. Y., by a majority of 14,000, in a vote of 64,000 adopted a city manager charter at the November election, which will go into effect on January 1, 1928.

Boulder, Colorado, which is one of the four cities in the United States now having manager charters under which the city council is chosen by the Proportional Representation method of voting, by a referendum vote defeated an attempt to withdraw the charter. As a similar attack on the charter had been defeated in 1923, it would appear that most of the citizens of Boulder are satisfied with their present form of municipal government.

Minneapolis has a charter commission which has recommended a City Manager Charter, but it has not been as yet submitted to the voters for formal approval.

Newark. By a vote of five to one the members of the Chamber of Commerce of Newark, New Jersey, favored the adoption of the report of its Municipal Affairs Committee, advocating the council-manager form of government. Notwithstanding this decisive vote, the Chamber will carry on a thorough campaign of education before any attempt will be made to have the people vote on the adoption of such a charter.

Cleveland's City Manager Charter as originally adopted provided that the members of the council should be elected on the basis of the Hare System of proportional representation. A movement to repeal this provision and return to the ward system of electing Councilmen was inaugurated and an election on the amendment held, August 11. Of the 211,828 registered voters, 41,271 came to the polls. The vote for the amendment was 20,353 to 20,918 for proportional representation which will continue as a feature of the Charter.

City Manager Campaigns.—At an election called for the day preceding Memorial Day, a proposal to adopt city manager government in Yonkers, New York, was defeated by 3,600 votes in a total poll of 15,000. Although the vote was negative, the criticisms directed at the municipal administration have already had a salutary influence. The Schenectady campaign for the adoption of the city manager plan failed at the election. The Republican organization was bitter in its opposition and by a ruling of the board of education the schools were closed to debates on the subject. All possible pressure was brought to prevent meetings in other places and the voters had small opportunity to become informed or interested.

DIRECTORY OF CITY MANAGER CITIES

The progress of the City Manager plan has been steady since its first adoption by Staunton, Virginia, in 1908. (Where changes have been made from ordinance to charter, city is listed among charter cities and when year plan was first adopted is shown.)

The following represents the growth of the manager plan by years:

Effective	Char.	Ord.	Total
1908	1	0	1
1912	1	2	3
1913	8	2	10
1914	13	5	18
1915	17	4	21
1916	16	3	19
1917	14	2	16
1918	19	10	29
1919	23	7	30
1920	20	14	34
1921	46	8	54
1922	23	8	31
1923	31	7	38
1924	12	8	20
1925	10	4	14
1926	4	0	4
1928	1	0	1
Not definitely known			14
Totals......	259	84	357

Cities having manager plan by states. Adopted by charter **black face** type; adopted by charter but having serious modifications, *italics;* adopted by ordinance, light face type.

ARIZONA
Phoenix
Prescott

CALIFORNIA
Alameda
Alhambra
Anaheim
Avalon
Bakersfield
Berkeley
Chico
Compton
Coronado
Delano
Fillmore
Fullerton
Glendale
Long Beach
Martinez
Monrovia
Monterey
Pasadena
Pittsburg
Porterville
Redding
Richmond
Sacramento
Santa Rosa
San Diego
San Jose
San Mateo
San Rafael
Santa Barbara
So. Pasadena
Stockton
Tulare
Visalia
Yreka

COLORADO
Boulder
Colorado Springs
Durango
Grand Junction
Montrose
Wray

CONNECTICUT
New London
Stratford
W. Hartford

FLORIDA
Bartow
Clearwater
Daytona
Del Ray
Ft. Lauderdale
Ft. Meade
Ft. Myers
Fernandina
Ft. Pierce
Gainesville
Kissimmee
Lake City
Lakeland
Largo
Leesburg
Miami
Miami Beach
New Smyrna
Ocala
Palatka
Palm Beach
Punta Gorda
Quincy
Sanford
St. Augustine
St. Cloud
Tallahassee
Tampa
W. Palm Beach
Winter Haven

GEORGIA
Albany
Brunswick
Cartersville
Columbus
Cordele
Decatur
Eastman
Griffin
Quitman
Rome
Tifton
Waycross

ILLINOIS
Downers Grove
Glencoe
Hinsdale
Kenilworth
Riverside
Wilmette
Winnetka

INDIANA
Michigan City

IOWA
Ames
Clarinda
Dubuque
Estherville
Iowa Falls
Maquoketa
Mt. Pleasant
Red Oak
Villisca
Webster City
West Liberty

KANSAS
Atchison
Belleville
El Dorado
Hays
Hoisington
Kinsley
LaCrosse
McCracken
St. Marys
Salina
Sterling
Stockton
Wichita
Winfield

KENTUCKY
Cynthiana
Harrodsburg

MAINE
Auburn
Camden
Portland

MASS.
Mansfield
Middleboro
Norwood
Stoughton

MICHIGAN
Albion
Alma
Alpena
Bay City
Benton Harbor

Big Rapids
Birmingham
Cadillac
Crystal Falls
E. Grand Rapids
Eaton Rapids
Escanaba
Ferndale
Gladstone
Grand Haven
Grand Rapids
Grosse Pte. Shores
Ironwood
Jackson
Kalamazoo
Kingsford
Lapeer
Marysville
Manistee
Mt. Pleasant
Muskegon
Muskegon Hts.
Otsego
Petoskey
Pleasant Ridge
Plymouth
Pontiac
Portland
Royal Oak
St. Johns
Sault Ste. Marie
Stambaugh
Sturgis
Three Rivers

MINNESOTA
Anoka
ColumbusHeights
Morris
White Bear Lake

MISSOURI
Excelsior Springs
Kansas City
Maryville

MONTANA
Bozeman
Columbus
Glasgow
Scobey

NEBRASKA
Alliance

NEW JERSEY
Cape May

NEW MEXICO
Albuquerque
Clayton
Clovis
Roswell

NEW YORK
Auburn
East Aurora
Newburgh
Niagara Falls
Sherrill
Rochester
Watertown
Watervliet

N. CAROLINA
Chapel Hill
Durham
Elizabeth City
Gastonia
Goldsboro
Greensboro
Hickory
High Point
Morgantown
Reidsville
Thomasville

OHIO
Ashtabula
Cincinnati
Cleveland
Cleveland Hts.
Dayton
East Cleveland
Gallipolis
Lima
Middletown
Oberlin
Painesville
Sandusky
So. Charleston
Springfield
Westerville
Xenia

OKLAHOMA
Ardmore
Coalgate
Devol
Duncan
Edmond
Grandfield
Heavener
Madill
Mangum
McAlester
Muskogee

Norman
Nowata
Pawhuska
Sallisaw
Sapulpa
Sulphur
Walters
Yale

OREGON
Astoria
Hillsboro
La Grande
Oregon City
Warrenton

PENNSYLVANIA
Ambridge
Aspinwall
Blairsville
Carlisle
Clifton Heights
Coraopolis
Dormont
Edgeworth
Lansdowne
Mifflinburg
Milton
Osborne
Sewickley
Towanda
Waynesboro

S. CAROLINA
Beaufort
Florence
Rock Hill
Sumter

SO. DAKOTA
Clark
Rapid City

TENNESSEE
Alcoa
Elizabethton
Kingsport
Knoxville
Murfreesboro
Missionary Ridge

TEXAS
Austin
Amarillo
Beaumont
Brenham
Brownsville
Brownwood
Bryan

Burkburnett
Eastland
Ft. Worth
Highland Park
Lubbock
Longview
Lufkin
Mexia
Navasota
San Angelo
Sherman
Stamford
Taylor
Teague
Temple
Terrell
Tulia
Tyler
Waco

UTAH
Brigham City

VERMONT
Springfield
St. Albans
St. Johnsbury

VIRGINIA
Alexandria
Bedford
Blackstone
Bristol
Charlottesville
Covington
Farmville
Franklin
Fredericksburg
Galax
Hampton
Hopewell
Lynchburg
Newport News
Norfolk
Petersburg
Portsmouth
Radford
Roanoke
Salem
Staunton
Suffolk
Warrenton
Winchester

WEST VIRGINIA
Bluefield
Charleston

Clarksburg
Marlinton
Morgantown
St. Albans
St. Marys
Wheeling

WISCONSIN
Janesville
Kenosha
Two Rivers

CANADA

MANITOBA
Brandon
St. James

N. B.
Woodstock

N. S.
Bridgewater
Kentville

Windsor
Wolfville

ONTARIO
Chatham
Espanola
Leaside
Niagara Falls

QUEBEC
Grand Mere
La Tuque

Montreal East
Outremont
St. Lamberts
Shawinigan Falls
Temiskaming
Wesmount

NEW ZEALAND
Port Chalmers
Taumarunui

MISCELLANEOUS MUNICIPAL PROBLEMS

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY OF THE NATIONAL MUNICIPAL LEAGUE

Streets.—Washington, D. C., has been held by the District Court of Appeals liable for failure to light its streets. In the case of *Berberich vs. District of Columbia* (not yet formally reported) Justice Van Orsdel held that "it is settled law in this District that the commissioners being charged with the duty of maintaining the streets in proper condition are chargeable with negligence in allowing the streets to become unsafe. Unsafe conditions may result from improper lighting as well as from defect in the street, and the degree of lighting required will depend upon the existing conditions. In the present case, as clouds and mist settled in wet and damp weather about this viaduct, the District was charged with the duty of meeting this emergency by proper and sufficient lighting facilities. . . . The jury therefore was not required to pass on the number and character of the lights, but from the evidence whether the lighting at the time of the accident was sufficient to make the place reasonably safe."

Privilege of Proceedings.—Newspaper reports of the proceedings of municipal bodies have been held to be of a privileged character. In the case of *Leininger vs. New Orleans Item Publishing Company* (101 Southern Reporter, 411) the Louisiana Supreme Court applied the principle saying: "A report, by a newspaper, of proceedings had at a public meeting of a municipal council, in which proceedings the public has an interest, when the report is a fair and accurate one of the proceedings had, is privileged, even though it contains matter defamatory of another. . . . Reports of such proceedings are privileged in the same manner as are reports of judicial proceedings. . . . It is not necessary in reports of judicial proceedings, and hence of the proceedings of municipal councils, 'that the report should be verbatim; nor is absolute accuracy essential so long as the report is substantially correct. A few slight accidental errors will not destroy the privilege, provided the whole report, as published, produces materially the same effect on the mind of the reader as an absolutely correct report would have done.'"

Carrying on Business.—A city may engage in business incidental to public utilities operated by it. In the case of the *City of Mayfield vs. Phipps* (263 Southwestern Reporter 37) the Kentucky Court of Appeals found the prevailing will throughout the country to be that if a "business is such as to come within the regulatory power of the municipality, because of its quasi-public nature, it may be authorized by the Legislature in the absence of constitutional inhibitions to itself engage in that particular business for the benefit of the public, and when it does so it is not performing strictly a governmental function, but it is exercising what the opinions hold as its right to conduct the particular business so impressed with public purposes for the public good. Whether it is a wise or unwise policy for a municipality to carry its products from its streets into private residences, and in so doing engage in a private business, is a question with which we have nothing to do, since our task is performed when we apply the existing law to the particular question as presented by the concrete facts. Of course, we would not be understood as holding that a city, without being the owner of such public utilities, could embark in the plumbing or any other strictly private business; but in so far as that business is connected with its plant, which it lawfully owns and has the right to operate, the law seems to be clear that it has the right to perform it; but it could not either furnish material or workmen to perform the same service to an independently or privately owned plant, since its right rests solely upon its incidental power growing out of its ownership."

Rechristened Cities. — Having passed through what the Chamber of Commerce of the United States calls the homespun period of development, American cities and towns appear to be giving more attention to the names by which they are known. Old names are being discarded and new ones adopted. In a study of the origin of names of American cities in 31 of the 48 states the Civic Development Department of the Chamber finds that in the five-year period from 1921 to 1925, 63 changes were recorded, compared with only 13 during the preceding five-year period. "It is apparent," the Department finds, "that interest in local names has increased materially in the last period, particularly in the years 1924 and the first half of 1925, there having been 24 changes in 1924 and 21 during the first half of 1925." Among the states most active in this respect are: New York, 21 changes; California, 18; Oklahoma, 13; Florida, 11. Duplication of names of cities is a serious problem. There are 31 Franklins, 27 Madisons, 25 Clevelands, 24 Lincolns, 24 Monroes, 23 Wilsons, 13 Roosevelts, 15 Adams, 12 Tafts and 5 Hardings. Capitals of nations have also been a source of duplication. There are 18 Genevas, 17 Berlins, 12 Moscows, 11 Viennas, 6 Pekins and 2 Brussels.

BILLBOARDS

By Clinton Rogers Woodruff

Honorary Secretary of the National Municipal League

Billboard Interests.—The billboard interests of the country have been generally combined in the General Outdoor Advertising Co., Inc., of New York. This organization is aware of the growing public resentment against billboards and has issued a statement entitled "Standards of Recognized Outdoor Advertising," in which are included two items that would be most important if they could prevail. They are:

"1. Structures should not be located in purely residential districts, or in locations where the resentment of reasonably minded persons would be justified; in locations that obstruct the view of natural beauty spots; on trees, rocks, fences, posts or natural objects; on locations that would tend to endanger traffic. 2. Structures shall not be erected except on property owned or leased for that purpose, and in no instance within the confines of the public highway."

Investigation.—The National Association of Real Estate Boards has instructed its Committee on City Planning and Zoning to commence investigation as to how billboards' use should be regulated so as to conserve scenic beauty and at the same time provide opportunity for legitimate advertising. The investigation will be made with the purpose of formulating suggestions as to what legislation may wisely be enacted by municipalities and by States to extract the nuisance element from this form of outdoor advertising. It is the purpose of the Association, through its 545 constituent boards, to urge the enactment of such legislation. In the meantime it is calling on city planning and zoning commissions to devise methods of proper control, and asking executives of cities and states to study this matter and to act. It is not opposing the use generally of billboard or signboard advertising. But it does hold that the erection of obstructive signs is out of place in a residential section of a city and in any position in the open country where such signs deface a scenic spot or mar the view from a scenic highway or boulevard.

Platform.—This position of the Association and the action which will be taken by it in regard to this subject are stated in a resolution passed unanimously at the annual convention held in Detroit, Michigan, June 23-26, of this year. The resolution is as follows:

"We recognize that the natural beauty of our country is a public heritage to be conserved. It is a community possession, and no individual and no corporation has the right to despoil the natural scenic beauty of the land for private profit.

"We believe that with the growth of the movement for city planning and zoning as a means to direct the future development of American cities, stabilize their land values and preserve their æsthetic values for community living, we should give serious consideration to the problem of outdoor advertising as one phase of the whole zoning movement.

"We hold that the indiscriminate use of signboards today retards the development of desirable districts, and tends to destroy values in districts already built up, and that such signboards have become an offense to the public generally. We hold further that the time has come when we should determine whether or not the character, location, extent and maintenance of signboards cannot be so regulated and controlled as to give legitimate opportunity for necessary advertising without the continuance of the present harmful conditions. Therefore, be it

"Resolved, That the National Association of Real Estate Boards recommends to the various executives, city and state, and to the various planning and zoning commissions, that immediate study be made of this problem, both with reference to county and state areas, which shall prevent the destroying of the beauty spots of the open country and bring about discontinuance of unsightly conditions in our cities. And be it further

"Resolved, That the National Association instruct its Committee on City Planning and Zoning immediately to commence investigation as to the possibilities of just regulation of billboard use, and to recommend legislation to make such regulation effective."

Recent legislation restricting outdoor advertising in three New England states points to definite progress. In Connecticut, the Pierrepont Bill imposes a license fee of five cents per square foot.

In Maine, the original bill introduced by Mr. Hale, of Portland in 1924, forbade the display of billboards unless licensed by the Secretary of State and authorized by the municipal officers. It imposed a tax of one dollar, plus five cents per square foot. But, the bill actually passed in 1925 merely forbids the erection or maintenance of billboards in highways, or "so situated with respect to any public highway as to obstruct clear vision of an intersecting highway or highways, or otherwise so situated as to prevent the safe use of the public highway."

In Massachusetts, on January 24, 1924, the Massachusetts Department of Public Works, after public hearings, promulgated new rules and regulations for the control and restriction of advertising devices. In consequence, the Poster Advertising Association of the United States and Canada has filed a bill in equity in the Federal Court (at Boston) requesting the Court to issue an injunction restraining the Public Works Departments of the state and of certain cities, including New Bedford, Pittsfield and Easthampton, from "molesting their business or property." They state that "it is impossible for the complainants to continue in business and comply with said rules and regulations."

Confusion.—The salient incidents of these three incidents as pointed out to the American Civic Association by H. A. Caparn are: (1) The adoption of the taxation principle in Connecticut, and its being looked on as a means of partial suppression. (2) The control of billboards by three different authorities (Superintendent of State Police in Connecticut, municipal courts and trial justices in Maine, and the Public Works Department in Massachusetts). The rejected Maine Bill gave control to the local authorities, subject to the license of the Secretary of State. (3) The ignoring in the Maine Bill of all objections to billboards excepting as dangers to traffic. (4) The adoption of the so-called "æsthetic" principle of regulating billboards in Massachusetts. The story of Massachusetts is the most stimulating. The constitutional amendment (Art. 72), passed in 1918, reads thus: "Advertising in public ways, in public places and on private property in public view may be regulated and restricted by law."

Pennsylvania Proposition. — In Pennsylvania a bill was introduced by Senator Buckman to place under the control of the Secretary of Highways all advertising signs visible from the State highways authorizing him, under the police power of the State, to permit only those to remain or to be newly erected that do not, in his judgment, add to the dangers of the traffic on such highways by diverting the attention of the drivers of vehicles used thereon.

This general proposition has been discussed with Attorney General George W. Woodruff of the State of Pennsylvania; with Dr. Clyde L. King, secretary of the commonwealth; with William H. Connell, deputy secretary of highways of Pennsylvania; with Everett L. Millard, a Chicago attorney who has successfully carried a famous billboard case through the United States Supreme Court, and with Frank B. Williams, counsel for the National Committee of Restriction of Outdoor Advertising, of New York city. All these authorities agree according to J. Horace McFarland who drafted the bill that the principle is sound and that the police power of the state can properly be exercised as proposed in protection of public safety along the state's highways. The opinion has also been expressed that as abutting property owners benefit greatly from the building of improved roads by the state and federal authorities, and as they are not assessed for any part of the cost of such roads, they might legally be restrained from maintaining or erecting private advertising signs that tend to interfere with the safety of traffic.

FIRE PREVENTION

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY OF THE NATIONAL MUNICIPAL LEAGUE

Discussion.—The outstanding development in the fire protection movement is the rapid extension of the field service of the National Fire Protection Association; to the support of which the principal industries are responding and through which project it is hoped to bring about a very definite reduction in the present preventable fire waste. The method of attack chosen at the outset, and which presumably must be followed for a number of years, is to make a special study of local conditions in a selected number of cities showing high fire losses over the last five-year period and to stimulate or create local agencies to undertake and achieve the desired improvement.

Needs.—These methods applied in some thirty cities during the past year have met with signal success so far as the response of influential citizens is concerned, and in most of these, causes of the daily fires have been easily disclosed and the necessity for action along the following lines clearly demonstrated:

(a) Competent inspection by a fire prevention bureau of the Fire Department to keep the city free from rubbish accumulations and other bad housekeeping conditions which cause fires.

(b) Revisions of, or amendments to the building code requiring greater general use of fire-safe materials in building construction, fire-resistive roof coverings, protected vertical and horizontal openings and automatic sprinklers.

(c) Adequate ordinances governing the storage and use of explosives and inflammable liquids.

(d) Adequate laws and procedure for apprehending and convicting incendiaries.

(e) Public education in the proper transmission of fire alarms and the value in all properties of first aid extinguishing devices. These remedies are regarded as simple as a kindergarten lesson, and there is no doubt of their effectiveness if applied, but action in these matters cannot be secured by correspondence or the dissemination of literature. The creation of a competent local committee of influential citizens assembled about the city officials charged with the community fire safety furnishes the most practical organization for a successful attack upon these conditions. Such a local committee, in whatever spirit of enthusiasm it may be created, requires constant encouragement and stimulation. It is the function of the field work of the Association to advise with and serve such committees where they exist and to create them where needed.

National Organization.—The Chamber of Commerce of the United States through its Insurance Department is carrying on a similarly vigorous campaign in conjunction with the National Fire Waste Council. Its principal propaganda is through the observance of Fire Prevention Week with the cooperation of the trade associations affiliated with the Chamber. A feature of Fire Prevention Week is the "Inter-Chamber Fire Waste Contest," the results of which are announced early in the year following the contest. The 1924 contest was the third so far held.

The purpose of the National Fire Waste Council is to coöperate with chambers of commerce and trade associations in their fire prevention activities. Its members may be called upon for assistance at any time. They are as follows: American Institute of Architects, American Institute of Electrical Engineers, American Society of Mechanical Engineers, Boy Scouts of America, Factory Mutual Inspection Department, Fire Marshals' Ass'n. of North America, International Association of Civitan Clubs, Mutual Fire Prevention Bureau, National Association of Credit Men, National Association of Insurance Agents, National Automatic Sprinkler Association, National Board of Fire Underwriters, National Fire Protection Association, Railway Fire Protection Association, Underwriters' Laboratories, U. S. Bureau of Chemistry, U. S. Bureau of Mines, U. S. Bureau of Standards, Western Actuarial Bureau.

Fire Losses.—America's bill for fire waste was $1,044 a minute, an annual loss of $548,000,000, exceeding all previous high records. These are the figures of the Actuarial Bureau of the National Board of Fire Underwriters quoted in a bulletin issued by the Insurance Department of the Chamber and the National Fire Waste Council. The total amount of property destroyed during the year was equivalent to more than half the annual interest on the national debt. Much of this enormous loss is preventable waste. "Although the fire losses of the United States continue to mount," says the bulletin, "it is not necessarily an indication that they cannot be reduced. The experience of the 1924 Inter-Chamber Fire Waste Contest shows that losses in the reporting cities were reduced to the extent of $4,000,000 over their average for the preceding five years coincident with the activities undertaken by local fire prevention committees. The per capita loss in these communities was $3.10, as compared with the national average of approximately $5.00. What has been done in some cities might well be duplicated in others through energetic fire prevention programs carried on under the auspices of local chambers of commerce and similar organizations. Although fire waste is a national problem, it can only be solved through the combined endeavor of all communities."

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Honorary Secretary of the National Municipal League

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DIVISION VII

TERRITORIES AND DEPENDENCIES

ORGANIZED TERRITORIES AND GOVERNMENT

By Frank McIntyre
Major-General and Chief of U. S. Bureau of Insular Affairs

ALASKA

Labor.—George A. Parks was appointed Governor in 1921 succeeding Thomas Riggs. The Governor reports that the slow but steady progress apparent for many years has continued.

Because of the scarcity of local labor in some districts and the short fishing seasons the canneries must depend to a large extent on labor imported from outside of the Territory. Further study may solve this problem by evolving a plan for the development of diversified fishing which will provide almost continuous employment for this labor. If this can be brought about it will result in a substantial increase in the permanent population in the coastal regions.

Fisheries.—The value of the fisheries products and the investment in the fisheries increased about 4 per cent. over 1923. The chief expansion was in the herring industry. All fishing operations were carried on under the regulations promulgated by the Secretary of Commerce as authorized by the act of June 6, 1924. Fishing seasons were shortened, or commercial fishing for salmon closed entirely, in many districts and an effort was made to regulate the fishing so that a sufficient escapement of salmon would reach the spawning grounds.

The closed season provided for in the North Pacific halibut treaty became effective for the first time in 1924. Under this treaty fishing for halibut was prohibited for three months, beginning November 16, 1924. It is interesting to note that the enforcement of a three months' closed season did not result in decreased production. On the contrary the catch was considerably increased over 1923.

The census of the seal herd on the Pribilof Islands indicates a substantial gain and the revenue derived from the sale of sealskins was more than $700,000.

Industries.—A gradual resumption of mining, both placer and lode, is apparent in all of the districts. The gold production in 1924 exceeds that of 1923. The supply of common labor for all branches of industry in the Territory was generally satisfactory during the year. Exploration in the several oil fields continued throughout the year, but so far the wells on the Alaska Peninsula have not produced oil in commercial quantities. The only producing oil wells are near Katalla.

Transportation facilities continue to improve to keep up with the increased travel during the summer season. The airplane service inaugurated last year in the Tanana Valley is greatly improved. The wagon roads and trails have been improved and extended throughout the Territory.

Fox farming is one of the important industries and it is estimated that there are approximately 391 farms containing over 36,000 foxes. The total value of the improvements and stock is estimated to be about $6,000,000. The propagation of blue foxes has developed very extensively in Alaska in the last five years, especially on the smaller islands, each of which can be used exclusively by one fox rancher.

Realizing the great value of fur and game to the Territory and the need for making Alaska's lands sustain such animals to the fullest possible extent, the Territorial legislature of 1925 passed an additional act adopting a program of stocking suitable available lands of Alaska with valuable fur and game animals.

A total of 1,280 reindeer has been imported from Siberia since 1891. There are now in Alaska approximately 300,000, and it is estimated that two-thirds of them are the property of Eskimos. It is estimated that there are in northern and western Alaska approximately 200,000 square miles of treeless region, worthless for agriculture, which could furnish pasturage for about 4,000,000 reindeer. At a not distant date the United States may draw a considerable part of its meat supply from the reindeer herds in Alaska.

Finance.—The condition of the Territorial treasury for the year ended December 31, 1924, was as follows:

Balance of cash on hand, Jan. 1, 1924	$148,911.53
Total receipts from all sources	976,753.10
Total disbursements under appropriation made by the Territorial legislature	858,550.46
Balance of cash on hand, Dec. 31, 1924	267,114.17

At the close of the year there were thirteen Territorial and four national banks doing business in the Territory.

Combined deposits in the several Territorial banks June 30, 1925, totaled $6,920,937.97 as compared with total of $6,609,427.81 at corresponding call of June 30 of the year previous. The combined capital of all Territorial banks totaled $630,000 as compared with $605,000 for the year previous.

There are at present eighteen incorporated towns in Alaska, sixteen of which have a total assessed property valuation of $21,283,127.97. The rates of taxation range from 10 to 20 mills.

Tourist business for 1925 was greater than that in 1924. The outstanding scenic attraction of Alaska is Mount McKinley National Park. It is the second largest national park in the United States, comprising an area of 2,645 square miles, the chief feature of which is the highest mountain in North America, Mount McKinley.

Governor Parks has recommended the creation of a constabulary or Territorial police responsible for law enforcement in the Territory to replace the eight organizations now in existence.

Railroads and Roads.—In July, 1924, Mr. Noel W. Smith was appointed special assistant to the Secretary of the Interior, and was sent to Alaska to study the operation of the Alaska Railroad and to make recommendations to the Secretary as to the future policy of the road and an estimate of the cost of completion. Mr. Smith assumed personal charge of the operation of the railroad, and later he was appointed general manager. It is estimated that to complete the Alaska Railroad—furnish it with the necessary facilities and equipment for performing its proper function as a transportation agency —an expenditure of $11,878,781 will be necessary. This expenditure for completion is due to the fact that in the original construction the early completion of the line was considered important, and it was found necessary to adopt many expedients, such as construction of wooden trestles from hastily cut and prepared native piling, the building of bridges on pile foundation instead of permanent masonry, the laying of track without the proper quantity of ballast under the ties, constructions of cuts and fills with only sufficient width to allow of laying the track, and similar methods of construction. The result of this character of construction is that the costs of maintenance are entirely out of proportion to what they will be when the railroad is completed.

The Alaska Railroad, during the fiscal year 1925, made progress in economy and efficiency of operation and maintenance as follows:—Earnings from rail and water transportation were $861,237 as compared with $907,174 in 1924. Expenses for maintenance and operation were $2,152,802 as compared with $2,643,750 for 1924. The deficit decreased from $1,739,274 in 1924 to $1,295,099 in 1925, or 25.5 per cent. Service for other departments of the Government, amounting to $92,277, is not included in the above revenue.

Several bridges have been rebuilt and improvements made to tracks and road bed.

The Alaska Road Commission's energies were largely directed to extending the general rehabilitation to trails and roads in remote portions of the Territory begun in 1920. This gradual rehabilitation, starting upon the more important projects, has now reached trails extending to all inhabited parts of the Territory. The work accomplished during the fiscal year may be summarized as follows: New construction, 46¼ miles wagon road, 45 miles sled road, 188 miles trail, and 1,040 linear feet of bridges of over 60-foot span. In addition several miles of wagon road were reconstructed, many miles graveled and a number of small bridges and culverts rebuilt. There were also many miles of various classes of roads and trails on which maintenance work was done. The work of maintenance and rehabilitation has been pushed and the roads and trails under the jurisdiction of the board are in better shape than ever before.

Education.—There are seventeen schools with 124 teachers and an enrollment of 2,822 pupils in incorporated towns. The per capita cost of these schools for the school year 1924-1925 was $106.63. Schools were maintained in fifty-six districts outside of incorporated towns. The per capita cost of these schools was $117.98. There were seventy-one teachers and a total enrollment of 1,258 pupils. In addition to the above, four coöperative schools were maintained. Citizenship night schools were conducted in ten communities. A keener interest was shown in these schools than at any time since their establishment in 1917. The third year of the Agricultural College and School of Mines finds this institution with an increase in its enrollment of more than 50 per cent. over last year. The total enrollment is 133.

Health.—The Bureau of Education maintains for medical relief for the natives five hospitals with a staff of physicians and surgeons, nurses, cooks, and orderlies at Noorvik, Akiak, Nulato, Kanakanak, and Juneau, and contractual relations with a number of other hospitals in Alaska as well as outside in Washington and Oregon.

During 1924 there were recorded 568 deaths and 641 births in the Territory.

Tuberculosis continues to exact its heavy toll among the natives. During the first part of January diphtheria appeared at Nome. There were thirty-four cases with five deaths. A supply of antitoxin was dispatched from Fairbanks by special dog team, with no further deaths reported after its arrival.

It is believed that no great improvement in the deplorable condition of the native races is possible until some form of Territorial contact is made with the various services and agencies engaged in medical relief among them.

Commerce and Industries.—The number of persons employed in the fisheries of Alaska in 1924 was 25,194. The total active investment in the fisheries was $62,660,637, of which $52,677,670, or approximately 84 per cent., was invested in the salmon-canning industry. The total value of Alaska fishery products, exclusive of aquatic furs, was $40,289,273, an increase of $1,610,448 over the preceding year.

The Alaska mines in 1924 produced $17,457,333 worth of minerals as against $20,330,643 in 1923.

Alaska produced 74,071,273 pounds of copper, valued at $9,703,721, as compared with 85,920,645 pounds in 1923, valued at $12,630,335.

About 100,000 tons of coal were produced from eight mines as compared with 119,826 tons from twelve mines in 1923. The Alaskan coals at present commercially available range in quality from low-grade lignite to semi-bituminous. Of the coal mined during the past fiscal year all but a negligible percentage may be classified as sub-bituminous, 30 per cent. of which, produced in Nenana field, is of a type bordering on high-grade lignite and 70 per cent., produced in Matanuska field, is of a type bordering on true bituminous.

All the petroleum produced in Alaska was from sixteen small wells, all on patented claims owned by the Chilkat Oil Co. During the fiscal year eighty-four applications for oil permits were filed in the land office covering 225,753.44 acres.

The lumber cut of the national forests was 52,500,000 feet, an increase of 17 per cent. over that of 1923.

ALASKAN TRADE

(Period July 1, 1924, to June 30, 1925.)

	Fiscal Year Ended June 30, 1924	Fiscal Year Ended June 30, 1925
Total shipments of merchandise to United States.....	$53,821,239	$55,440,645
Gold and silver to United States..................	6,183,241	5,602,217
Total shipments	$60,004,480	$61,042,862
Total value of shipments to Alaska................	31,719,251	33,621,969
Balance of trade in favor of Alaska................	$28,285,229	$27,420,893
Classification of principal shipments from Alaska:		
Canned salmon	31,173,975	31,682,221
All fish and fish products, including canned salmon..	36,852,075	38,584,837
Copper ores	12,443,412	11,491,992

HAWAII

General Conditions.—W. R. Farrington was appointed Governor of Hawaii on July 5, 1921, on the retirement of C. J. McCarthy.

The visit of the united fleet of the United States Navy during the combined Army and Navy maneuvers turned the nation's attention to the importance of Hawaii in the scheme of national defense.

The forest reserve system has been enlarged, particularly on the island of Cahu, where the water situation is becoming acute.

A Hawaiian Homes Commission, charged with the rehabilitation of the Hawaiian race, as authorized in the Hawaiian homes law of 1921, has been in active operation a little over four years and has established nearly 2,000 Hawaiians on homesteads and house lots.

Tourist travel to Hawaii showed a large gain in arrivals over the corresponding months for 1924. The phenomenal gain has been in summer visitors. The number of tourists in Hawaii for 1925 (partially estimated) is 14,500. Private automobiles number 24,383.

The Hawaiian National Park (volcano) has benefited by the park road building program authorized by Congress. Approximately 60,000 visited the park this year.

Population.—The most recent estimate of population, June 30, 1925, is as follows:

Races	Numbers
Japanese	128,068
Chinese	24,851
Hawaiian	43,327
Portuguese	29,416
Filipino	49,335
All others	48,648
Total	323,645

Finance.—Notable legislation passed at the regular 1925 session of the legislature included the budget act, the retirement or pension act, and the continuation of the accountancy commission, authorized to install modern accounting systems throughout the Territorial and municipal governments. The budget act is based on the Federal Budget scheme, and the pension system will give to every civil employee of the Territory at least 50 per cent. of his salary on reaching retirement age.

The Territory has enjoyed a steady growth and continued prosperity. Twenty-nine banks were in operation at the close of the year with deposits of $60,809,715.97, the highest on record. The taxes collected to carry on the domestic administration of the Territory and its municipal divisions amounted to $11,828,985.23. The cost of assessing and collecting taxes was 2.08 per cent. The assessed value of the real and personal property totals $360,832,895. The bonded indebtedness of the Territory is $17,990,000. Tonnage of shipping entering ports of Hawaii increased from 868 ships of 5,089,783 tonnage in 1915 to 1,068 ships of 7,993,137 tonnage in 1925. Hawaii's trade with the mainland of the United States doubled in value for the same period.

The legislature also passed the laws necessary for Hawaii to qualify and participate in Federal aid for roads, vocational training, and health, as authorized by the bill of rights passed by the Sixty-eighth Congress.

Citizenship. — Another step is needed to complete the recognition of the Territory of Hawaii as part and parcel of the United States, namely, prompt and unquestioned recognition of the American citizens born in this part of the United States when they are traveling to any other part of our country. The immigration authorities refuse to accept the birth certificates issued under Territorial authority to American citizens of oriental ancestry. The legislature authorized the governor to appoint a commission to proceed to Washington and present the matter to the appropriate departments and to the Congress if that should be deemed necessary.

Education and Sanitation.—The Territorial department of public instruction has general control over private as well as public schools. The Territorial school budget for the biennium of 1926-27 authorized by the legislature of 1925 calls for an expenditure of approximately $10,600,000. There are 175 public schools with 1,719 teachers and 55,044 pupils, and 65 private schools with 462 teachers and 9,872 pupils, or a total of 240 schools, 2,181 teachers and 64,916 pupils. The University of Hawaii has 1,096 students.

Good health is indicated by a lowering death rate and an advancing birth rate. Tuberculosis continues to take the heaviest toll of any disease. Measures for the control and cure of leprosy are proving effective. The board of health of the Territory records the lowest annual death rate in its history. The death rate for the year was 12.74 per 1,000 and for 1924, 13.93. The races showing the highest and lowest mortality were, respectively, the Filipino, 287.38, and Caucasian, 36.96. The birth rate was 41.57 per 1,000 population.

Agricultural.—The total area of public lands is 1,598,149 acres, of which 67,000 acres are agricultural land.

Progress of the agricultural industries is most gratifying. The sugar and the pineapple enterprises have harvested the largest crops of record. The sale price of both sugar and canned pineapples has ruled lower than the previous year, but the total income to the Territory is not materially reduced. The coffee industry has held its own through many vicissitudes and now offers a fair prospect of advancing.

Labor.—There is at present no shortage of labor in the main industries, though the year has witnessed the collapse of a labor agitation among the Filipino laborers, intended to bring about a general strike on the sugar plantations. It is believed that in no other sugar-cane producing country of the world are the laborers and their families better cared for, better paid, or better rewarded for their hard work than those employed in the sugar industry of Hawaii.

DOMESTIC EXPORTS BY ARTICLES *

(Fiscal years 1924 and 1925.)

Articles	United States, 1925		Foreign, 1925	
	Quantity	Value	Quantity	Value
	Pounds		Pounds	
Sugar	1,353,120,285	$ 71,468,115	500	$ 35
Coffee	3,366,014	869,812	1,253,620	327,723
Fruits and nuts (mostly pineapples)	....	27,687,283	....	256,210
Other (in 1925 mostly sugar-mill machinery)	....	4,021,226	....	873,888
Total	....	$104,046,436	....	$1,457,856

Articles	Total, 1925		Total, 1924	
	Quantity	Value	Quantity	Value
	Pounds		Pounds	
Sugar	1,353,120,785	$ 71,468,150	1,115,425,283	$ 77,409,978
Coffee	4,619,634	1,197,535	2,336,343	462,909
Fruits and nuts (mostly pineapples)	....	27,943,493	....	28,372,055
Other	....	4,895,914	....	4,363,311
Total	....	$105,504,292	....	$110,608,253

* Trade official figures for the fiscal years to July 1924, and July 1925.

PORTO RICO

Conditions.—Governor Horace M. Towner reports steady progress in all lines of endeavor in Porto Rico. The Chief of the Bureau of Insular Affairs of the War Department visited Porto Rico during the year. He found evidence of material progress in every field of governmental and private activity. The most noticeable governmental progress was in the erection of necessary public buildings and the extension of the splendid highway system of the Island.

The Island is almost wholly agricultural and has an area of 3,600 square miles. Its population numbers 1,300,000. The serious problem in Porto Rico is the excess of population. To a slight extent it is being met by the gradual development of small industries. There is, however, no noticeable increase in the departure of emigrants from the Island. In Haiti, for example, a marked element of its present prosperity is due to the funds brought back to the Republic by Haitian laborers returning from Cuba and Santo Domingo.

There is a steady growth in the foreign trade. More than 90 per cent. of this is with the United States.

Finance.—The receipts of the government have fallen far short of the expected revenues. The Governor reports that there has been considerable opposition to the payment of taxes. One reason has been because of unforeseen defects in the law which afforded an opportunity and encouragement for delay, and a chance to escape payment. The other has been the purpose on the part of certain taxpayers to institute litigation causing delay in collections, so as to embarrass the Treasury until it should be compelled to make a large reduction to cover deficits. The taxes are not excessive. The general property taxes are very much less than one-half of those imposed in the United States. The total tax of 1923, in the United States, including national, state and municipal taxes, amounted to $68.33 per capita. The total taxes which would have been paid by the Porto Ricans if those imposed had been paid, would have amounted to $9.02 per capita.

Trade.—Porto Rico's external trade in 1900 was $16,602,004; in 1925 it had grown to $182,441,458. In 1900, Porto Rico's purchases from the United States amounted to $6,952,114; in 1925 the purchases had increased to $79,349,618. In 1900, Porto Rico sent to the United States products valued at $3,350,577; in 1925 Porto Rico's shipments to the United States were valued at $84,411,792. In 1900, Porto Rico's imports from foreign countries amounted to $3,037,391; in 1925, such imports amounted to $11,154,983. In 1900, Porto Rico shipped to foreign countries her products to the amount of $3,261,922; in 1925 her shipments to foreign countries had increased to $7,525,065.

Education.—The largest item in the annual budget is the appropriation for education. The recent appropriations for the next two years total $10,600,000—about half of the total appropriations for all expenditures of the government. With one-half of the entire population totally illiterate, with tens of thousands of children who are not yet provided with any school privileges whatever, and with more than one-half of the schools conducted in rented rooms unfitted for the purpose, with too few teachers and most of those inadequately prepared, and with insufficient books and apparatus, it has been fully realized that to better these conditions would be the supreme test of the government. At the commencement of the American occupancy, there was practically no public school system in evidence. Between 80 and 90 per cent. of the people could not read and write; 90 per cent. of the population was rural and there were no rural schools whatever. Now over 2,000 rural schools are in operation. The percentage of illiteracy has been reduced almost one-half since 1900.

Sanitation.—There has been a persistent and consistent effort to better health conditions in Porto Rico. The activities of the Department of Health have been greatly extended. In 1902, soon after American occupation, the birth rate and death rate were approximately the same, 26 per thousand. Since then, the birth rate has increased to 37 and the death rate has been reduced to 18. There has been a steady fight waged for the control of Uncinariasis or the hookworm disease. The International Health Board of the Rockefeller Foundation has coördinated its work with the Insular government for the eradication of this disease. Tuberculosis is the most frequent cause of death in Porto Rico.

Commerce and Industries.—Sugar, coffee, tobacco and fruit are the principal crops. A greater acreage is being devoted year by year to the growth of Sea-Island cotton. In 1924, 12,000 additional acres were put in cotton and it was expected that the 1925 increase would be even greater. The exports for the past two fiscal years and the principal crops are shown in the table below:

	1924	1925
Sugar	$47,838,687	$53,261,895
Coffee	4,595,811	3,742,694
Leaf tobacco	12,578,448	9,156,480
Cigars	5,460,119	7,105,508
Fruit	3,807,567	4,202,654
Cocoanuts	616,484	709,853
All others	13,383,424	13,757,773

PHILIPPINE ISLANDS

By Frank McIntyre

Major-General and Chief of U. S. Bureau of Insular Affairs

Political.—Governor General Leonard Wood reports that during the year 1924 he visited most portions of the archipelago including all provinces, larger cities and towns. Generally speaking, he found everywhere a contented people living under steadily improving conditions and surroundings.

In the triennial election held this year the Nacionalistas obtained a large majority in both the Senate and the House of Representatives. Manuel L. Quezon was reëlected President of the Senate and Manuel Roxas reëlected Speaker of the House of Representatives. Sergio Osmeña, President pro tem of the Senate, is in this country as the head of an independence mission of the Philippine Legislature.

Four of the departments are under the direction of the under Secretaries who assumed charge as Acting Secretaries upon the resignation of the Secretaries in July, 1923. Felipe Agoncillo resigned as Secretary of the Interior and was succeeded by Honorio Ventura.

Chief Justice Araullo of the Supreme Court died in 1924 and was succeeded by Justice Avanceña. Attorney General Villa-Real was appointed a Justice of the Supreme Court and Delfin Jaranilla, Judge of a Court of First Instance, succeeded him as Attorney General.

The Filipinization of the public services has continued gradually, due largely to the natural desire of the Filipinos to occupy various offices and especially to the influence of the Act, commonly known as the Osmeña Retirement Act, which permits retirement after 6 years' service with 60 per cent. of a year's salary paid in monthly installments, extending over a period of three years, and retirement after 10 years' service with 1 year's salary similarly paid. This law, in conjunction with the continued agitation concerning independence and the withdrawal of the United States from the Islands, has induced many Americans to accept retirement and seek employment elsewhere. The result has been seriously to handicap the Government, especially in the Department of Public Instruction where the number of American teachers has been greatly reduced. The teachers' pension and retirement law also tends to encourage the retirement of old and experienced Americans.

Finance and Economics.—Business conditions have steadily improved; there has been a marked increase in revenues; the collection of taxes has been better than last year; the balance of trade has been heavily in favor of the Philippines, and trade has been stable. The total increase in revenue for the calendar year 1924 was 9,120,945 pesos (50 cents, gold value), over the revenue of the preceding year. The cost of maintaining the Government was 969,020 pesos less than the preceding year, making a total of 10,089,955 pesos in favor of 1924 as compared with 1923.

The work of the Manila Harbor Board has been largely instrumental in making Manila the best port in the Orient for handling cargo. The new pier is nearing completion and is one of the largest in the world.

Rural Credit Associations have been organized in accordance with acts passed by the Legislature. The Associations have been of the greatest assistance to the small farmers and consequently to the upbuilding of agriculture. The search for petroleum continues thus far without notable success.

The labor supply is adequate for the present state of development of the Island's resources. Many thousands of Filipino laborers have gone to Hawaii in the past few years to work on the sugar and pineapple plantations.

The Bureau of Public Works, besides its maintenance work, has built a few hundred kilometers of first class roads, has completed several reinforced concrete bridges and culverts, has bored 100 artesian wells, and has done other valuable work. There are several unfinished projects under way.

The currency in circulation on December 31, 1924, was 123,979,980 pesos in comparison with 110,389,333 pesos in 1923.

The customs collections in 1924 were 21,364,608 pesos and in 1923 17,058,562 pesos. The balance of trade in favor of the Philippines was 54,668,000 pesos. The principal imports were cotton and its manufactures 49,379,000 pesos, iron and steel 24,094,000 pesos, rice 18,525,000 pesos, mineral oil 17,340,000 pesos, meat and dairy products 9,862,000 pesos, wheat flour 8,042,000 pesos, automobiles, parts and tires 6,484,000 pesos.

Education.—The widespread and keen interest in education continues to be one of the most encouraging features of the Philippine situation. The people are deeply interested in the schools and contribute very liberally to their support. The schools are crowded to their utmost capacity.

General progress in education, however, especially during the last few years, has been in quantity rather than in quality. In a desire to provide school facilities for all children, growth in numbers has received more consideration than the development of real educational efficiency. The system has expanded too rapidly for the best results. Before further expansion there should be a more adequately trained teaching staff, improved supervision, a better curriculum and a longer period during which children are kept in school. The children in the primary and intermediate schools constitute 95½ per cent. of the total attendance.

School Statistics.—The following are the more important statistics in connection with the school system:

Public Schools	*1923-24*	*1924-25*
Primary	6,573	6,534
Intermediate	1,010	1,118
Secondary	85	94
Total	7,668	7,746

In the above schools there were approximately 300 in which there was limited instruction in agriculture.

Annual Enrollment	*1923-24*	*1924-25*
Elementary	1,087,732	1,077,044
Secondary	41,265	49,692
University of the Philippines	5,993	5,540
Private schools, including private universities	69,227	73,246
Total	1,204,217	1,205,722

Teachers (University and Private Schools included)	*1923-24*	*1924-25*
Filipinos	25,451	26,013
Americans	329	326

Calendar Year	*1922*	*1923*
	Pesos	Pesos
Expenditures for public schools	22,068,939	22,202,532

School Year	*1922-23*	*1923-24*
	Pesos	Pesos
Voluntary Contributions	1,191,059	1,354,589

The Legislature appropriated 100,000 pesos for an educational survey which was headed by Dr. Paul Monroe of Columbia University and published a report of several hundred pages. English is becoming more widely used with the passage of time. The difficulty is the efficient teaching of English which requires an adequate staff of American teachers. The University of Santo Tomas is the oldest university under the American flag. It is taking steps to replace Spanish with English in considerable degree.

Sanitation and Health. — Public health conditions continue to improve, and public interest in the subject of good health is increasing. The death rate in 1924 was lower than in 1923, which was the lowest on record up to that time. Comparative figures per thousand are 15.48 as compared to 18.44. Appropriations have been made to aid in the construction of much needed provincial hospitals. The birth rate for 1923 was 34.99 per thousand and in 1924 was 25.47.

Representatives of the Rockefeller Foundation have done important work in malaria control and in establishing methods of laboratory control. The United States Army Medical Research Board has completed valuable and exhaustive studies in the etiology and prevention of dengue fever and has definitely established its mode of transmission and the means of prevention. The application of these discoveries will be of far reaching effect in reducing morbidity from this disease.

The results of the anti-leprosy work are most encouraging. There are 409 negatives in the Culion colony and several hundred more in sight. One hundred ninety-seven former lepers have been sent back to their homes as cured. About 75 per cent. of those under treatment are improved. There are 5,600 lepers in the colony.

Commerce and Industries.—The total imports for 1924 were 216,021,790 pesos as compared with 174,999,494 for 1923. The exports for 1924 were 270,689,325 pesos as compared with 241,505,980 pesos for 1923. The trade with the United States showed an increase of 17 per cent. over that of 1923 and during the same period the trade with Japan showed a decrease of 6 per cent., that with the United Kingdom an increase of 22 per cent., and that with China an increase of 20 per cent. The trade with the French East Indies was more than twice as great as that of the previous year, and amounted to 19,756,000 pesos, an increase of 137 per cent. Trade with Germany also showed a big increase amounting to 9,524,000 pesos in 1924, a gain of 44 per cent. The principal export was sugar which amounted to 31 per cent. of the total exports. The next was hemp, 22 per cent, copra, 11 per cent., and tobacco, 8 per cent. The value of the hats exported almost doubled. Seventy-two per cent. of the exports were sent to the United States and 56 per cent. of the imports were from the United States.

The largest increase in imports was in rice which was an increase of 149 per cent. over the previous year. The Philippine embroidery industry shows a decrease of 26 per cent. over the previous year.

ISLAND DEPENDENCIES

By Frank McIntyre

Major-General and Chief of U. S. Bureau of Insular Affairs

AMERICAN SAMOA

Government.—Governor Bryan reports a prosperous year for American Samoa. When visits were made to villages, the reception of the Governor and his party was in every case most friendly and hospitable. In the past the village of Nuuuli has been the headquarters of disaffection.

The births for 1924 were 277 and the deaths numbered 94. Yaws, ringworm and intestinal parasites are the most prevalent diseases.

The U. S. S. *Ontario* visited Swains Island on May 13, 1925, and United States sovereignty was proclaimed over the Island, in accordance with Joint Resolution No. 75, Sixty-eighth Congress.

Commercial.—The copra production for the year 1924 was 1,750 tons, an increase of 30 per cent. over 1923. The contract price per ton was $92.12 as compared to $82.62 for the previous year. On June 30, 1925, the Bank of American Samoa had a surplus of $8,131.64.

Finance.—A poll tax of $6.00 and a school tax of $3.00 are collected from each of the 2,237 taxpayers. The total school tax, if paid, would amount to only $6,711. The Department of Education was allotted $17,198 for the calendar year 1925.

The estimated revenue for 1925 was $85,740; the estimated surplus from 1924 was $40,000; total $125,740. Customs receipts for the year were $79,565.45 and customs expenditures were $36,981.60.

GUAM

General Conditions.—Captain H. B. Price, U. S. N., Governor of Guam and Commandant of the Naval Station, reports continued progress in the Island. Practically all recommendations made by the Governor last year have been carried out. The recommendation made for citizenship for the natives is renewed. Eleven members of the United States House of Representatives visited the Island for three days, attended a session of the Guam Congress and learned Guam conditions at first hand.

In October, 1924, a typhoon with a heavy rainfall inflicted serious damage. The precipitation was twenty-nine inches in thirty hours. The American Red Cross responded promptly and sent $2,500 to be used in alleviating distress.

The deposits of the bank of Guam amounted to $247,369.99, a small increase over last year.

Population.—The native population number 15,246, an increase of 86 over the previous fiscal year. Non-natives residing in Guam number 543, and the Naval establishment totals 859, giving a population of 16,648 for the Island.

Military training begins with

school boys between the ages of 7 and 16. At 16 they are enrolled in the Active Militia and passed to the Militia Reserve at 21. At 25 they are discharged.

Agricultural and Economic.—The Island subsists, in the main, on the proceeds of copra and the money spent by the Federal Government. Agriculture makes up the difference.

The lack of water over most of the Island during the annual dry season is a serious matter for the farmers. They are being encouraged, with some success, to build for themselves reinforced cisterns, earthquake proof, to hold the water that falls abundantly in the wet season. During the year the Island government has built one such cistern and also a reservoir. Road and bridge building have facilitated the dispatch of farmers' products to market.

Education and Sanitation.—Every child in the schools receives industrial training. The boys take up gardening, carpentry, weaving of aggag and copra making. The girls make lace, sew, cook and weave aggag. Athletics have received a great impetus during the year. This activity has improved the use of English. There are twenty-three schools with 98 teachers and 2,813 pupils. Expenditures for schools were $48,160.73.

Systematic sanitation surveys were made of the large towns with beneficial results. Through health talks and newspaper articles the people are being instructed in sanitary measures. Five lepers are in isolation.

Commerce.—Imports for the fiscal year 1925 amounted to $386,270.12, a decrease of $219,000 from 1924. Exports for the same years were $109,177.72 and $113,754.40, respectively. The balance of trade against Guam in 1925 was $525,162.20, a reduction of $214,467 over the previous year. Imports from Japan in 1925 were $44,456.70, an increase of 82 per cent. over 1924.

VIRGIN ISLANDS

General Conditions. — Governor Philip Williams, pursuant to the recommendation of the Colonial Council of the Municipalities of St. Thomas and St. John and the municipality of St. Croix, created a Department of Agriculture, Commerce and Labor. This department has gathered valuable statistics relative to the various problems which confront the Government.

The population in 1917 was 26,051 and in 1925 was 25,950, many going to the United States during that period.

In August, 1924, a severe hurricane passed over the Islands of St. Thomas and St. John. Great damage was done and relief work was handled by the American Red Cross and a local committee.

Health.—The President made available the unexpended balance of the 1924 Federal appropriation for the water supply system and for rebuilding the Peters Farm Hospital at Christiansted. For this institution $25,000 was appropriated. This hospital was expected to be ready at the close of the year. A twenty-five bed addition to the leper asylum has been allowed. Work on these projects is progressing satisfactorily. The municipal hospital of St. Thomas is now well established.

In general, health conditions for this year may be stated as excellent. The death rate has steadily decreased. The annual average for 1911 to 1917 was 35.4 per thousand population. In 1924 it was 23.1. The infant mortality rate (under 1 year of age) for the years 1911 to 1917 was 320 per thousand. In 1924 it had been reduced to 178.2. The American Red Cross has been of great assistance.

Finance.—Business conditions are steadily improving. There is an increase in trade and in savings deposits. The main source of revenue is the ground and building tax and the export duty on sugar.

During the past year the revenues in the municipality of St. Thomas and St. John were approximately $30,000 greater than the preceding fiscal year. This exceeds the revenues of any fiscal year during the past 15 years. The revenues of the municipality of St. Croix were approximately $30,000 greater than the preceding fiscal year. This exceeds the revenues of 1922 and 1923 and for 1923-1924, but is considerably less than any other recent year. The expenditures of both municipalities (exclusive of water supply, etc.) were considerably less than the preceding fiscal year.

In May, 1925, the Secretary of the Treasury appointed special commissioners to investigate the tax and currency situation in the Islands.

Commerce.—The Governor reports that commercial transportation facilities have not in any way improved during the past year. Very few of the Shipping Board vessels call at the port of St. Thomas; none of those that do call being passenger vessels. It therefore became necessary during the year to again request the President to postpone the application of the coastwise laws of the United States to the Virgin Islands. Four large tourist ships called twice each, bringing 2,750 visitors. It is expected that a new dock will be brought to the Virgin Islands within the next few months. In June, 1925, the Governor placed the United States Immigration Act of 1924 in effect in the Islands.

Agriculture.—The sugar cane area on St. Croix to be harvested in the spring will be 20 per cent. to 25 per cent. more than that cut over the past season. There is a general note of optimism among the planters and a bumper crop is expected.

The pink boll worm cuts down the possibilities in cotton. Sweet potatoes grow easily, also onions. Cattle raising, dairy and beef, looks promising. The rainfall is not sufficient for the best results in agriculture. Total rainfall of 1924 was 49.26 inches. The highest temperature was 90 degrees; the lowest 63 degrees.

Education.—The enrollment in schools, public and private, was 4,410; teachers employed 120. The school system is established on the six, three, three plan; 6 years of primary and grammar school work, 3 years Junior High School and 3 years Senior High School. A municipal dentist is employed in each health center to give free dental work to all school children.

LAND CONDEMNATION

By S. J. Brandenburg

Professor at Clark University

Legal Conditions.—Land condemnation refers to the exercise of the power of eminent domain in respect to land. Under this power, not only land in the corporeal sense, but all easements, privileges, and other incorporeal rights arising from private property in land may be taken for public purposes on the payment of equitable compensation. The existence of the power of eminent domain in the state has been called "indispensable and incontestable"; it is the "offspring of necessity." It is "an attribute of sovereignty, inherent in the state and existing independently of the constitution, and is only affected by the constitution in that certain limitations are placed therein on the exercise of the right." (In re: Niagara, Lockport and Ontario Power Co., 210 N. Y. S. 248.)

The contemplated use of the land to be condemned must be recognized, however, as a public use; in fact, the final test of the validity of the exercise of the power is the public welfare. In a dynamic state, new circumstances constantly arise in which public necessity or public convenience can be served only by resort to the power of eminent domain. The right may be exercised by the state itself, or it may be delegated to a private corporation or individual to whom the state has entrusted the performance of some public duty or function. The corporation, or individual does not have the absolute right, however, but holds it only by act of the Legislature.

Economic and Social Conditions.—Land condemnation has played an important rôle in furthering social changes in recent years. Many states in Central and Eastern Europe, in order to procure the economic and social strength attributed to a wide diffusion of ownership in agricultural lands, have condemned large private estates and re-sold the land in small parcels and on easy, long term payments, to peasant proprietors. In our own country we have long been accustomed to condemnation proceedings as a means to the extension of educational facilities, highways, railways, and other public utilities. The United States Supreme Court has recently held the condemnation of land for a "scenic highway" to be justifiable and valid on the grounds of "public purpose." (Rindge County v. Los Angeles County, 43 Sup. Ct. Rep. 689.) The rapid growth of the movement for city planning and city zoning has brought forth a new aspect of public purpose; so, also, the consolidation of land for public municipal, state, and national parks; for the protection of water-sheds safeguarding municipal water-supplies; for publicly owned forests; and for numerous other beneficial public projects.

Unused Lands.—In many of our states there are thousands of acres of non-arable lands, privately owned; conspicuous among these are the cut-over lands of the older lumber regions. Such lands are not suitable for division into farms, despite the fact that efforts are being made by some of the private owners to locate settlers upon them. With a better comprehension of the appropriate economic utilization of different classes of land, the movement grows to reduce such lands from private to public ownership by means of condemnation; to rescue them from their status as waste and non-productive lands and to re-forest or otherwise utilize them in a beneficial public manner, which private owners, lacking the incentive of near-at-hand profits, will not attempt. Likewise, the power is being used increasingly to restore to public ownership existing forest or mineral-bearing lands, and other natural resources.

Conservation.—Private ownership of such resources means a greater or less degree of exploitation, not only for the sake of present private profits, but to meet the heavy burden of actual year-by-year carrying charges. Thus conservation is promoted through condemnation proceedings—a use of the power to secure a "public benefit" for future generations by restoring to public control resources which should never have been alienated. The necessity for impounding, and for the protection of adequate water supplies for enlarging urban areas, for irrigation projects, for giant power utilization, and the construction of aqueducts, conduits, and other devices for carrying water, or power to the points of consumption appears more conspicuously as a public purpose. Such developments will involve an increasing use of land condemnation proceedings in the immediate future.

Excess Condemnation.—Excess condemnation is receiving increasing attention in the United States. It may be defined as the taking of more land than is needed for the carrying through of the immediate public purpose. For example, condemnation used for widening or straightening streets may leave small, or misshapen parcels in the hands of the several private owners. Such lands, lying outside the limits of the primary improvement, if they remain in control of the original private owners may be utilized, if at all, in a way not in furtherance of the public purpose, or may even detract from it. Hence the condemnation of lands in excess of those needed for the immediate improvement may often be essential to the attainment of the maximum public benefit from the improvement.

Legal Basis.—This device has been successfully used in Europe, particularly in England, but it has been only slightly used in the United States. The courts of some states have held it an unwarranted and unconstitutional extension of the power. A few states have expressly authorized it by constitutional amendment. The Illinois court has recently held (Hunt Drainage Distr. v. Harness, 148 N.E. 44), that the drainage district has power to condemn land outside the district, in order to procure the more complete success of the project. Michigan has held (Rogers v. Breisacher, 204 N.W. 112), that for streets and highways, land of sufficient width to provide for future, as well as present needs of the public, may be condemned.

Tendency to Enlarge the Power.—Clearly, the tendency at the present time, both in statutes and in court decisions, is to enlarge the power of land condemnation in that,—(1) it may be exercised by the governing unit, or delegated to a private corporation, or individual; (2) it has been extended to include roads, bridges, navigation, power, water supply, drainage districts, telephone, telegraphs, and public utilities generally; (3) it may include more than is immediately necessary for the primary purpose. It is justified, or denied, however, solely on the basis of clearly established public benefit to be derived.

WATER RIGHTS AND WATER USES

By S. J. Brandenburg
Assistant Professor at Clark University

Navigable and Non-navigable Waters.—This article is concerned only with rights and uses in *non-navigable* waters. *Navigable* waters have been defined as those having capacity to float the products of regional forests, mines, and farms to market. They are regarded as public highways, and though the property of the state, are subject to the regulations of inter-state commerce. Private property in land exists to the edge of such waters. *Non-navigable* waters include all other inland waters. They are subject to private ownership and control, including the bed of the stream or lake.

The Riparian Doctrine.—The common law defining rights in non-navigable waters was developed in humid regions where water was relatively abundant in comparison to land, and hence was regarded as a mere incident to the land. Water here being regarded as a part of the land, the riparian owners asserted their rights to its use. In practice, these rights were limited to such reasonable use as would not substantially impair the volume and purity of the waters, and so trespass upon the equal rights of other riparian owners. Riparian rights have become so firmly established in the eastern sections of the country that they may not be impaired without compensation, although they may be regulated in the public interest.

The Appropriation Doctrine.—In the semi-arid states of the west, over vast areas, water is the limiting factor of production. It has a scarcity value and can be devoted only to the most highly beneficial uses. The control and use of water determines the control and use of land, as well as the direction and extent of most other economic enterprises. In the humid regions, water, because of its abundance, is an incident to the land; in the arid regions, this relationship is reversed. A system of control and use of waters suitable to one region may be wholly impracticable in a different region. Thus the system of rights of the riparian owner developed under humid conditions is wholly unsuited, for example, to the purposes of irrigation; in consequence it has been vitally qualified or denied entirely in most of our western states.

In these regions, the system of appropriation of rights is prevalent. The doctrine of "appropriation" assumes water to be not an exclusive and integral part of the immediate lands in which it is situated, but to be separable from such lands. In consequence, its use is not limited to lands adjacent to the stream or body of water but may be extended to non-riparian lands,—in fact, to lands entirely outside the water-shed or drainage area. Preference in use is based not on location with respect to source of water supply, but on priority of claim, limited only by reasonably necessary and beneficial use. In substance, the courts regard appropriation valid if there is: (1) intent to apply water to some beneficial use now or in the future; (2) diversion from natural channel by ditch or other conduit, and if destined for irrigation, the land must be properly prepared for its reception; (3) application within reasonable time to some beneficial industry. We may note, too, a growing tendency to regard natural waters as the property of the state, and so not subject to private ownership. This expanding public property concept, however, does not invalidate existing vested rights of appropriators of water who are making beneficial use of it; but it may safeguard the future public interest in this increasingly important commodity.

The Uses of Water.—Where water is scarce, public well-being at times requires that certain uses be given precedence, typically: (1) drinking, for man and beast; (2) domestic cooking, washing, etc.; (3) irrigation, and other agricultural uses; (4) mining; (5) power and manufacturing. While details vary in different states, the general purpose of regulatory measures is that water shall be applied to those uses most beneficial to the people as a whole, and the rights of every appropriator must yield to this public purpose unless he can show material damage from so yielding.

The attention of the country has recently been focussed on the competing uses of limited amounts of water in several dramatic instances.

Owens Valley.—To meet her increasing municipal water needs, the city of Los Angeles constructed an aqueduct across deserts, and over or through mountains, to the Owens Valley, two hundred and fifty miles away. Farmers, already located in the Valley, suffered from depletion of irrigation waters and have invoked the courts and resorted to violence to maintain what they conceived to be their rights to the waters of the Owens River and Lake, under the riparian law dominant in California. The issues are not yet settled.

Interstate Rivers.—Disputes as to the waters of interstate rivers have been frequent and litigation has been carried to the United States Supreme Court. That tribunal has held (Kansas v. Colorado, 206 U. S. 46), that no inflexible rule, conceding monopoly rights to any one state, can be established, but rather, having due consideration to the particular circumstances, the principle of "equitable division" between the rival state claimants shall prevail. In a later case (Wyoming v. Colorado, 259 U. S. 419), the court held that in jurisdictions where the doctrine of appropriation prevails, the priorities of individual users should prevail regardless of the state of residence. By this decision, and for this purpose, state lines are non-existent. At its 1925 meeting, the American Society of Civil Engineers emphasized that approximately 40 per cent. of the annual low water yield of the arid west was essential for irrigation, that this use should take precedence over power uses, and that the power use would benefit in the long run by such a present concession.

Colorado River Compact. — The Federal constitution denies treaty-making power to states, but a state may with "the consent of Congress . . . enter into an agreement or compact with another state." (Const. Art. I, Sec. 10.)

This involves two groups of states, viz., Wyoming, Colorado, Utah, and New Mexico, lying in the head-waters of the Colorado River and its tributaries, and devoted to the production of grasses, cereals, hardy fruits and vegetables; and Nevada, Arizona, and California, lying in the lower Valley, with a warmer climate devoted to the production of cotton, citrus fruits, and early vegetables. The several states in each group differ among themselves in their water needs, and in California particularly there is a rapidly expanding demand for hydro-electric power. While the rival claims of the individual states have not been negligible, the differences between the upper four and the lower three have been the chief cause of the controversy.

In order that economic development may proceed with assurance in all the states concerned the compact provides for the "equitable distribution" of waters on the basis of determined beneficial uses.

Uses are classified as (1) domestic, agricultural, milling, etc.; (2) power; (3) navigation. It should be noted that the first use consumes most of the water so devoted; the second use represents merely a diversion which may not interfere seriously with the first or third use of the same water.

On the basis of an average annual flow at Yuma of 20,500,000 acre feet, 7,500,000 are apportioned to the upper four states and 8,500,000 to the lower three. The equitable claims of Mexico are to be met out of the remaining 4,500,000 acre feet, and any unapportioned residue will be apportioned among the seven states some time after 1963, on the basis of what their needs shall then appear to be.

All of the states concerned have ratified the compact except Arizona. Friends of the measure in Arizona are active, however; and pressure of public opinion in the six ratifying states is strong. Arizona will probably yield to these influences and it is predicted that her approval will be the signal for favorable action on the part of Congress.

Delaware River Compact.—Increasing demands upon the waters of the Delaware River by residents of New York, Pennsylvania, and New Jersey brought this compact into being early in 1925. It provides for the allotment of the waters of the river among the several states concerned; safeguards the flow of the stream against undue diversion for power or other purposes; and protects riparian or other vested rights against future pollution and deleterious encroachments within the drainage area. The relative importance of the uses of the water are stated as: (1) domestic and municipal; (2) sanitation; (3) industry and power; (4) navigation.

The state of New York ratified the compact, March 18, 1925; New Jersey proposed reservations and referred the matter to a special Board which is to report to the 1926 session of the Legislature; and Pennsylvania awaits definite action by New Jersey.

Confusion in Water Rights.—It must be obvious that water rights are far from satisfactorily settled. Conflicting theories and varying demands in the application of these theories under widely differing conditions have caused confusion. The complexity and multitude of claims themselves have added further to confusion. The rights of any individual claimant to the use of water within a given water-shed area are inextricably interwoven with the rights of all other claimants. The adjudication of any particular claim affects the rights of all other claimants within the district. These complexities, together with delays incident to court action, have led to the growth of sentiment in several of the semiarid states to lodge final authority for the determination of disputes in the hands of State Water Boards, or similar specialized administrative bodies. Constitutional amendments looking towards this change in procedure were, however, voted down recently in California and Washington. Moreover, the courts have been jealous of this threatened intrusion on their prerogative as final arbiters of differences among citizens, and recent judicial opinions have declared invalid such expeditious methods as those suggested above. The issue here is one between the impartial, though slow moving, justice of the courts and the efficient, though perhaps arbitrary methods of expert administrators.

There is little doubt but that the adjudication of rights in water will become increasingly important with the passing of the years. Economic development in the arid and semiarid regions intensifies the question there. In all regions, moreover, increasing population with its increasing demands for water for domestic and municipal purposes, the greater liability to pollution of the sources of domestic supply, the continuing advance in the use of hydroelectric power, and the rapidly growing demand for access to the lakes and streams of the country for purposes of recreation imply a more general public concern in the issues involved.

TWELVE MILE AND HOUR RUN LIMITS

By Charles E. Hill
Professor at George Washington University

The Law.—The twelve mile limit is based on the enforcement provisions of the Tariff Act of 1922, and on section 2760 of the Revised Statutes which dates back to an act passed by Congress in 1799 and contains the substance of a British statute. This section permits customs officers to board vessels, if bound for the United States, and to search and examine them within twelve miles of the coast. Under the Tariff Act of 1922 the vessel boarded and searched need not be bound for an American port. If it shall appear that any violation of the laws has been committed whereby the vessel or cargo has been made liable to forfeiture, the boarding officer shall seize the vessel and take her in for adjudication. If a master of any vessel from a foreign port allows merchandise, sea stores included, to be unloaded, transshipped or received within twelve miles of the coast and before the vessel has come to the proper place for discharging merchandise and before he has received a permit to unload, he shall be liable to a penalty twice the value of the merchandise, but not over $1,000, and the vessel and merchandise shall be subject to seizure and forfeiture.

Cases.—During 1925 the enforcement of these provisions has mainly affected vessels laden with liquor. That commodity can be lawfully imported only on a permit issued by the collector of internal revenue. Two examples will show how the law is applied. The *Zeehond,* 4F (2D) 735, was a Dutch vessel with a cargo of liquor carrying papers indicating Halifax as her destination. She was seized between three and four miles off Long Island. The captain had established connections with a bootlegger on shore. Entries in the logbook revealed that Long Island was the real destination of the cargo. The district attorney asked for a decree of forfeiture against the cargo. The court so ordered. The *Muriel E. Winters,* 6F (2D) 466, was a British vessel from the Bahamas, laden with liquor. She permitted the unloading of a considerable quantity within twelve miles of the Texas shore but outside the three mile limit. She was not destined for an American port. The court condemned the vessel and the cargo.

Treaties.—Liquor vessels have anchored accordingly beyond the twelve mile limit, where they have been visited at night by fast motor boats which took the liquor ashore. Secretary Hughes proposed to Great Britain an extension of control by the United States. Great Britain held that such action would be an encroachment upon the freedom of the seas. The decision of the Supreme Court in *Cunard S. S. Co. et al v. Mellon,* 262 U. S. 100, embarrassed British ship owners and facilitated negotiations. The United States made during 1924 a so-called liquor treaty with Great Britain and similar agreements with six other powers: Denmark, Germany, Sweden, Italy, Panama and the Netherlands. A like treaty was negotiated with France which has been approved by the United States Senate; but France has thus far failed to ratify it.

The treaties specify that the territorial jurisdiction of each country is not to be prejudiced. All of the countries agree not to object to the boarding of their merchant vessels by the proper American officers for the purpose of examining the papers and the cargoes within one hour's sail of the American coast. If the liquor is intended to be conveyed by a vessel other than the one boarded, it is the speed of such other vessel that is to determine the distance. If there is cause for belief that the vessel has committed or is attempting to commit an offense against American law, the vessel may be seized and taken into port for adjudication.

Claims.—By the treaty with Great

Britain any claim by a British vessel for compensation on the ground that she has suffered loss or injury through improper visit and search and seizure shall be referred to two persons, one nominated by Great Brittain and the other by the United States. In case of their failure to agree, the dispute is referred to the British American Mixed Claims Commission. In the other six treaties the failure of the two nationals to agree is solved by referring the dispute to the Hague Court of Arbitration. No such claims have as yet been preferred.

Liquors under Seal.—In return for the concession to the United States the parties to the treaties are permitted to have their merchant vessels enter American ports with liquors in their sea stores or cargo, provided such liquors are kept under seal continuously while the vessels remain in American territorial waters.

One Hour Distance.—The trend of judicial interpretation in the district courts is indicated by the following cases. The *Frances Louise,* 1F (2D) 1004, was a Canadian schooner, anchored sixteen and a half miles off Cape Cod, with 3500 cases of liquor taken on board at Havana. One J. D. Stewart visited her, left slips of paper with the number of cases of liquor indicated, and gave instructions that the cases should be delivered to those who offered the duplicate slips. Small boats visited her, delivered the duplicate slips, received the liquor and made for shore. One was the *Katherine B,* which did not have gasoline enough to reach shore. The *Frances Louise* gave her ten gallons. On the way in the *Katherine B.* was seized and she revealed the source of the liquor. Revenue officers went out and brought the *Frances Louise* in to Boston on the assumption that the *Katherine B.* could make the intervening distance from shore in one hour. Subsequent investigation proved that she could not. The court dismissed the contention of the government that the schooner was "trading with the shore" and thereby subjected herself to forfeiture under international law. The schooner was ordered released and the government appealed to the Supreme Court.

Jurisdiction by Treaty.—The *Pictonian,* 3F (2D) 145, was a British vessel, laden with liquor, seized fourteen miles from the American coast but within one hour's sail. The United States court held that the treaty with Great Britain was self executing and needed no further legislation. Held further that the libel need not allege that the ship was committing an offense at the time of the seizure. It was sufficient to allege that the ship was attempting to make contact with an American vessel and to smuggle liquor into the United States. To possess liquor within one hour's sail of the coast with intent to smuggle it was ground for forfeiture of vessel and cargo. Judge Thomas took issue with this decision in *Over the Top,* 5F (2D) 838, on the extension of criminal jurisdiction by treaty. Only an act of Congress could do so. "Certain it is," observed the learned judge, "no part of the criminal law of this country has ever been enacted by treaty."

Previous Infractions.—The *Panama,* 6F (2D) 326, was a British vessel, carrying liquor only, seized 12.1 miles off Galveston on the belief that she could reach shore within one hour. No evidence existed of any violation of law off Galveston. But it was proven that on the way from Havana she had been met by boats from New Orleans and had delivered to them 400 cases of liquor. She was really owned and controlled by smugglers at New Orleans. She had been taken outside the twelve mile limit and more than one hour's sail from shore. But she had made contact with the shore in violation of law. It was held that the treaty did not change the right of the United States to seize, for the violation of law is not limited by any particular distance from shore.

Furnishing Information.—A good arrangement is found in the treaty with Canada, proclaimed July 17, 1925, by which each party upon request will furnish to the appropriate officers of the other information concerning clearances of vessels. Clearances are to be denied if the articles consigned are forbidden importation into the other country. The observance of good faith in enforcing these provisions and their extension to other countries will largely do away with any need for extending the three mile limit.

STATISTICS OF TERRITORIES AND DEPENDENCIES

By James B. Hedges

Professor at Clark University

ALASKA

Area.—The territory has an area of 590,884 square miles.

Population.—Fluctuations in population during the period 1890-1920 are shown by the following table:

1890	32,052
1900	68,592
1910	64,356
1920	55,036

Of the population in 1920, 34,539 were males and 20,497 females; 27,883 were white; 26,558 Indians; 56 Chinese; 312 Japanese; 128 negroes. Chief town, Juneau; population, 3,058.

HAWAII

Area.—The total area of the islands is 6,449 square miles. The principal islands and their area are: Hawaii, 4,015 square miles; Maui, 728 square miles; Oahu, 598 square miles; Kauai, 547 square miles; Malokai, 261 square miles; Lanai, 139 square miles.

Population.—The population of United States census of 1920 was 255,912, of whom 151,146 were males, and 104,766 females. The estimated number of the various nationalities and races on June 30, 1924, was: Hawaiians, 21,271; part Hawaiians, 20,950; Chinese, 24,522; Japanese, 125,368; Portuguese, 26,791; Filipinos, 39,608; Porto Ricans, 6,347; Spanish, 1,932; Americans, British, Germans, and Russians, 34,272; Koreans, 5,817; others, 215.

Principal City.—Honolulu, population, 83,327.

PHILIPPINES

Area.—The group is composed of 7,083 islands, of which only 466 have an area of one square mile, or over. The most important islands are: Luzon, with an area of 40,814 square miles; Mindanao, 36,906 square miles; Samar, 5,124 square miles; Negros, 4,903 square miles; Palawan, 4,500 square miles; Panay, 4,448 square miles; Mindoro, 3,794 square miles; Leyte, 2,799 square miles; Cebu, 1,695 square miles; Bohol, 1,534 square miles; and Mastate, 1,255 square miles. The total area is about 115,026 square miles, of which 92 per cent. is included within the eleven islands named above.

Population.—Total population according to Philippine census of 1918 is 10,314,310, chiefly of Malay race,—91 per cent. of whom are Christians and only 932,953, or 9 per cent., are Moros or pagans. Population of Manila is 285,306, of whom 259,437 are Filipinos; 17,760 Chinese; 1,612 Japanese; 2,916 Americans; 2,050 Spaniards; 664 English; 201 Germans; 121 French; and 71 Swiss.

PORTO RICO

Area.—The area of the island is 3,435 square miles.

Population.—The population in 1920 was 1,299,809; between 1910 and 1920 the population increased by 16.3 per cent. The distribution of the population according to color in 1920 was as follows: white, 948,709; black, 49,246; mulatto, 301,816; Chinese, 32; Japanese, 4; all others (Filipinos and Hindu), 2.

Principal Towns.—San Juan, population 71,443; and Ponce, 41,912.

GUAM

Area.—The length of the island is 32 miles, the breadth from 4 to 10 miles, and the area 210 square miles.

Population.—The population on June 30, 1924, was 15,710, of whom 15,160 were classed as "Natives."

Principal Towns.—Agaña is the seat of government; population, 7,432. Piti, with a population of 429, is the port of entry.

VIRGIN ISLANDS

Area.—The islands consist of the three islands of St. Thomas, St. Croix, and St. John, having an area respectively of 33, 84, and 21 square miles,—a total of 138 square miles.

Population.—The population by the census of November 1, 1917, was: St. Thomas, 10,191; St. Croix, 14,901; St. John, 959,—a total of 26,051.

Principal Towns.—St. Thomas, on island of the same name, population, 7,747; Christiansted and Frederiksted on island of St. Croix, population 4,574 and 3,144 respectively.

AMERICAN SAMOA

Area.—American Samoa consists of the islands of Tutuila, area 54 square miles, and Tau, Ofu, and Olosenga, having a combined area of about 23 square miles. The total area is 77 square miles.

Population.—The population according to the 1922 census was 8,194, of whom 6,125 were on the island of Tutuila. The only good harbor is Pago Pago, where there is located a United States Naval base on forty acres of land acquired by the national government.

PANAMA CANAL ZONE

Area.—Land and water area is 527 square miles.

Population.—The population in 1920 was 22,858, of whom 17,964 were civilians, and 4,884 belonged to the military establishment.

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Professor at George Washington University

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DIVISION VIII

LAW AND JURISPRUDENCE

CONSTITUTIONAL CHANGES IN EUROPEAN COUNTRIES

By Lindsay Rogers
Professor at Columbia University

In Europe during 1925 there were few attempts at constitution making. The new states which came into being as a result of the War had for the most part completed their frameworks of government, and while some of these had to be changed, the day of constituent assemblies had passed.

New Constitutions.—The most important attempt to draft a complete constitution was in Greece and on September 30 the Government issued a decree dissolving and ordering new elections for the National Assembly—a body which had been serving both as legislature and constituent assembly. General Pangalos, the Premier and Secretary for War, declared that the assembly had lost the confidence of the nation; that it was an obstacle to a compromise between opposing political factions, and the complete restoration of normal governmental conditions.

There were, however, in a number of constitutional systems, important developments, either through custom or through ordinary laws, which had the effect of making changes in the political machinery. The most spectacular of these developments were, of course, in Italy and in Spain, where dictatorships govern the countries, sometimes with scant regard for the provisions of constitutions; but in other countries, such as England and France, important questions of public law and governmental organization had to be considered.

ITALY

Electoral Method.—In Italy, Mussolini's proposed reforms were sufficiently far-reaching almost completely to change the character of the government set up by the Italian Statuto of 1848. These changes related to electoral laws, local government, and the position of the Cabinet. The Italian electoral law, forced through by Mussolini in 1923, was one of the most ungenerous to minorities that any political system has ever known. The country was divided into fifteen electoral districts. In each constituency party lists were submitted and voted on, and the votes obtained by each party were added. The party with the largest national total (provided that it was at least 25 per cent. of the total vote cast) was ipso facto the Government. In other words, the entire list of this party was declared successful in every single circumscription, and two-thirds of the seats in the Chamber were assigned to the Government. The representation for the remaining seats was decided in each constituency according to the preferences which the voters there had expressed.

Proposed Plural Voting.—After one election under this law which, as was expected, gave the Fascisti complete command of the Chamber, Mussolini proposed another change. In January last he brought in a new electoral bill which provided for a plural system of voting. The electorate was to be divided into three classes. Adult males unable to read and write or paying less than 100 lire in direct taxes to the State were entitled to one vote. The second class consisted of those who paid more than 100 lire taxes, all members of academies of art, letters and science, teachers in schools, holders of certificates from middle and upper schools, members of Italian orders, officers and non-commissioned officers, holders of civil and military decorations, municipal and provincial councillors, members of provincial and administrative committees, proprietors, editors and managers of daily and weekly papers and journalists enrolled in one of the legally recognized press associations, managers of industrial, commercial and agricultural enterprises and businesses paying a minimum tax of 100 lire yearly, and the fathers of at least five sons who are living or were killed in the War—these were given two votes. Three votes were allowed members of the Royal Family, cardinals, holders of military gold medals, members of the four chief military and civil orders, and state officials, including deputies, ex-deputies, senators, and professors of the Royal universities.

This was much more complicated than the Belgian system of plural voting. It combined the worse features of this with the iniquitous provisions of the Prussian three-class system, and the result would have been to destroy any pretence of universal suffrage and to give the great bulk of the population only one vote apiece in an election, while a comparative few could cast two or three ballots.

Single Member Constituencies.—It was withdrawn by Mussolini almost as soon as it was suggested, and for it was substituted a proposal to revert to the old system of single-member constituencies which obtained before the adoption of proportional representation in 1919. The uninominal scrutiny was agreed to by the Italian Senate last March. The particular point of criticism was a provision permitting retiring deputies to be candidates for reëlection without formality, while new candidates had to present a petition with four hundred signatures. This differentiation was to the obvious advantage of the Fascisti, whose representatives in the present Chamber of Deputies would not have to comply with the same formalities required of possible opponents in the next election. The Senate, nevertheless, approved a law by a vote of 214 to 58.

Local Self-Government.—Extensive reforms in connection with local-self-government were inaugurated. The administration of Rome was put in the hands of a Governor nominated by Royal decree with full power and responsibility for the administration of the municipality. He will be assisted by two Vice Governors, and ten Directors, all named by Royal decree, and by a Commission of eighty persons chosen from the professional and merchant classes. In cities with less than 5,000 inhabitants popularly elected councils have been supplanted by agents appointed by the Government, and there has been considerable administrative reorganization in the direction of putting the national services of education and railroads, telephones, etc., under the direction of the Prefects. While elections were thus being suppressed in 7,000 of Italy's 9,000 municipalities, Parliament granted women the right to vote in municipal elections.

Senate.—The composition of Parliament was also up for consideration. It was first discussed by a Committee of eighteen appointed by the Fascisti Government, and various alternative suggestions were threshed out. This Committee failed to agree. One group proposed to make no change in the Senate, but to have the Chamber of Deputies elected in part on the basis of manhood suffrage, and elected in its other half on the basis of occupation. A second group of the Committee opposed all professional representation, while a single member proposed Senatorial representation based on occupation. This last scheme was adopted for Mussolini's proposals. He did not, however, desire to displace the present members of the Senate (who were appointed for life) but would in time turn the Senate into an elective instead of a life body, and base it on professional representation. These reforms were embodied in a bill introduced in Parliament in November.

Cabinet.—But of most importance was Mussolini's proposal with regard to the position of the Cabinet. The bill prepared in November made the Premier "responsible to the King for the general political direction of the

Government" and extinguished parliamentary responsibility. All Ministers were to be nominated and recalled by the King on the proposal of the Premier who was to direct and coördinate matters in disagreement among them. The number of ministries and their competence was to be determined by Royal decree, and Article IV of the law provided that "The Premier may be entrusted to direct one or more of the ministries by Royal decree." This simply put in constitutional form what already had been the actual fact; for Mussolini has held several portfolios himself at the same time, and has exercised a free hand in reshuffling his Cabinet. Up until July, for example, when he had been in office for 33 months, he had only one associate, the Minister of the Interior, who had retained office from the beginning of the Fascist régime. Sixteen Cabinet members had been dismissed by him for various reasons.

The Premier.—The law extinguishing parliamentary responsibility provided also that no question could be included in the agenda of the Senate or Chamber without the consent of the Premier; that the Premier could ask that any bill rejected by one of the two Houses be voted upon again, and that this could take place by secret ballot without discussion. If upon the measure's reconsideration, the Government proposed amendments, then the discussion would be limited to those amendments. The Premier's salary would be determined by Royal decree instead of parliamentary provision, and in case of his inability to act, his duties would be taken over by a Minister designated by himself.

Parliamentary Responsibility.—Such changes, of course, run completely counter to all developments of constitutional government. In Germany before the War, and more recently in Japan, whose constitution was formed on Prussian and Austrian models, constitutional struggles have been directed to increasing the importance of the legislature vis-a-vis the executive. The attempt was, that is to say, to transform the influence that the legislature might exert through debates into real power over a Cabinet which would be responsible to Parliament alone and not, as previously, to the monarch. The Mussolini proposals in Italy would reverse this development; they would transform a Parliamentary system of responsible Cabinet Government into something resembling the German model or the Japanese adjustment, which incidentally is gradually changing to a parliamentary form, for universal suffrage and the increasing power of Japanese party organizations will make the Cabinets pay more and more heed to the Diet. Responsibility will slowly develop.

A striking change in electoral laws occurred in Japan where the franchise was extended to about 14,000,000 voters. In previous elections hardly 3,000,000 persons have cast ballots. The House of Peers insisted on amending the bill so that the voting age would be increased from 25 to 30, and it was anxious also to exclude from the franchise persons who received either family or public support. This would have limited the number of voters to less than 10,000,000. This amendment was opposed by the Government and the lower house, but a compromise was reached and the House of Peers gave way.

Practically all of the constitutions adopted by the States which were born at the Paris Conference have set up responsible Cabinet Government on the British model, and with additional legislative checks on the executive by reason of interpellations and Committee control during legislative recesses.

SPAIN

The Spanish Directorate also effected extensive changes in the organization of local governments, but the close of the year saw it apparently restore, in part, normal constitutional life. On December 3, a new Cabinet was formed, one-half military men, and one-half civilians. The ministerial declaration declared that "The Constitution will be maintained integrally, but will continue suspended," and the promise was made that the Parliament would be revived. The state of siege had been partially lifted in May. In the Spring of 1925 a new municipal law was promulgated. It granted the right of suffrage to women who were heads of families, reduced the voting age to 23 years, introduced a system of proportional representation, suppressed the Mayors directly appointed by the central government, replaced the right of appeal to the Governor by the right of appeal to judges, and asserted the right of municipalities to conduct their local affairs and to have recourse to the referendum. Political life in Spain, however, has been much more dislocated than in Italy, and General Primo de Rivera was not to be expected to restore the normal régime instantly. It was an interesting fact, however, that the development of his dictatorship seems to tend toward the restoration of Parliamentary government, whereas in Italy Mussolini seems to be using his majority in the Chamber of Deputies to solidify executive dictatorship.

GOVERNMENTAL DEVELOPMENTS IN OTHER COUNTRIES

By Lindsay Rogers

Professor at Columbia University

Dictatorships. — Certain parallels may be drawn between the constitutional aspects of the Spanish and Italian dictatorships. In Spain, the Parliament was completely ignored. The Cortes was dissolved immediately the Directory took office. On the other hand, Mussolini, after the march on Rome, and after he had been entrusted by the King with the duty of forming a ministry, kept the Italian Chamber alive. Perhaps it avoided death only by granting the Premier the right to issue extraordinary decrees without their being based upon specific laws, but the forms of Constitutional Democracy still stood.

In the second place, both dictatorships were brought about with the consent, if not with the tacit approval, of the monarch. Neither the King of Spain nor the King of Italy, that is to say, seemed to object very strenuously to the demand for an extraordinary régime. Perhaps the motive was discretion rather than approval. Perhaps the sovereign saw in each case that resistance might imperil his own position. Whatever the reason, however, it is significant that two such far-reaching revolutions were brought about with the positions of the sovereigns untouched, but with the titular executives relegated to the background, just as they are under parliamentary systems.

The third point that is worth while suggesting is that in Spain the extraordinary régime rested on the Army. Primo de Rivera divided Spain into nine zones of military control. He placed them under the command of Generals upon whom he could depend. Mussolini, on the other hand, built his own forces, and did not rely on the Army. His administrative assistants were non-military officials. This is a much more complex task than a military dictatorship. The latter is comparatively simple, for the organization of control is already in being.

FRANCE

Problems.—Constitutional developments in France related principally to the reorganization of the Cabinet, the position of the Senate, the possible dissolution of the legislature and electoral reform. There was no problem in respect of the presidency. M. Millerand's descent into the political arena, his recall by a majority of the Chamber, which went on a strike and refused to support a Cabinet so long as Millerand was in the Élysée, his resignation and the appointment of M. Doumergue have resulted in the French President being relegated to the position of a titular executive alone. He has reassumed his role of a mute idol in a pagoda, exercising influence perhaps, but limiting his public communications to ceremonial utterances.

Prime Ministers.—For some years an important and unsolved administrative problem in France has been the most efficient organization of the services attached to the presidency of the Council—that is, the office of Prime Minister. In a decree in October, 1925, M. Painlevé settled the matter, and set up a secretariat which will probably be retained by future ministries, but as to this there can be little assurance, since a half dozen adjustments have in as many years been tried and then discarded. Like the British Cabinet when Mr. Lloyd George became Prime Minister in 1916, the French Cabinet had no machinery for preparing agenda, keeping minutes, preserving archives, or communicating decisions which were taken. These were left at lunch time to the memory of each Minister. During the War, following England's example, some beginning was made with Undersecretaries of State and General Cabinet Secretaries, but there were almost as many arrangements as there were ministries.

General Secretariat.—In July, 1924, the Herriot Government set up a General Secretariat which was empowered to coördinate governmental action, to collect information and documents, and to make the studies which were demanded by the President of the Council from the different municipal departments. This office was suppressed in April when Herriot gave way to the Painlevé ministry, but Parliament authorized in its place an Undersecretaryship of State, and the duties of this office have now been regularized and defined in a decree of the French Cabinet. The functionaries attached to the office are divided into three groups which are charged with recording decisions of the Cabinet, preparing agenda and indexing Parliamentary documentation, the study of economic and social questions and liaison with the appropriate Government Departments and the National Economic Council, and the study of administrative questions and liaison with the appropriate Ministers, the Council of State, and the National Defence Council. This organization is more elaborate than the British Cabinet Secretariat, which was greatly reduced in personnel and importance when the Conservative Government took office in 1922. In France the device may be of much use in easing the frequent transitional periods when changes of ministry occur. These changes are frequent; under the Third Republic there have been some seventy ministries which have had an average tenure of nine months. The longest tenure of office was by Waldeck-Rousseau who was Premier from June, 1899, to June, 1902. One of the defects frequently alleged to exist in the French Cabinet system is the ignorance of new Cabinets of what old ones have been doing, and M. Painlevé's decree will make it possible for a permanent secretariat to present to a new ministry such information that this difficulty will no longer exist.

Senate.—The Herriot ministry resigned when it was defeated on April 10 in the Senate by 156 votes to 132 on the question of exceeding the legal limit of the banknote circulation. This brought forward the question of the position of the Senate in the French Parliamentary régime. Cabinet responsibility is incompatible with a bicameralism which does not provide for a weak upper chamber, for a Cabinet cannot serve two masters; it can be responsible to only one branch of the legislature. Thus in countries with Cabinet Government the second chamber is usually less powerful than the lower or more popular body. The French Constitutional Laws make no distinction in the responsibility that the executive has to the two branches of the legislature, but in actual practice Cabinet responsibility has been primarily to the Chamber of Deputies.

On only three recent occasions in the history of the Third Republic has the Senate been a factor in forcing a change of ministry. It dismissed the Bourgeois ministry in 1896, the Briand ministry in 1913, and now the Herriot ministry in 1925. The incident showed that the constitutional theory may prevail over the constitutional practice; that in other words, the Cabinet is responsible to the Senate, although it should be said that in this case the action of the Senate was symbolic rather than decisive. M. Herriot's coalition support in the Chamber was shaking, and he had no backing there sufficient to enable him to make the fight against the upper body. One effect of the incident, however, will be the renewed and intensified unpopularity of the Senate with the Left; for a discussion of the Senate's method of election and its powers has been going on since the Cartel des Gauches made its great gains in the elections of 1924.

On notable occasions in recent years the Senate has held out against the Chamber—on social legislation, the income tax and electoral reform—and the parties of the Left are anxious to follow the precedent in England and reduce it to a state of nonage at the same time that they change its method of recruitment. The difficulty is, however, that there is no agreement on changing the present hybrid form of indirect election, and while the disagreement continues action will be postponed.

DISSOLUTION OF CHAMBERS

General.—Marked Cabinet instability revived the discussion of whether the Chamber of Deputies could not be dissolved before 1928, when its term will expire. It was an interesting fact that several European Parliaments were in 1925 dissolved before the expiration of their terms. Elections were held in Portugal, Jugoslavia and Czechoslovakia (the last case complicated by a dispute with the Vatican), and new Parliaments came into being. In Czechoslovakia there was no relief from the multiple party difficulties for the new Chamber contained sixteen groups and a coalition had to be formed. In Germany in October there was a serious likelihood of a special appeal to the people because of the opposition of certain parliamentary groups to the ratification of the Locarno agreement. In Japan it was likely that party manœuvers would advance the date of consulting the electorate under the new universal manhood suffrage law, and the Australian elections of November 14 resulted from the dissolution of the legislature before the expiration of its term—a dissolution which was the more interesting because a compulsory voting law was used for the first time.

New Plans.—Schemes of dissolution in foreign Constitutions have been of two kinds. In Imperial Germany and even yet in Japan, with the Cabinet not responsible to the legislature, dissolution is a means of punishing a recalcitrant assembly. In systems with responsible government, on the other hand, dissolution is an appeal to popular sovereignty—a solemn referendum. Legislatures hesitate to defeat a Government when they realize that they will thereby face the expensive uncertainty of standing for reëlection.

France.—The French Constitutional Laws provide for the dissolution of the Chamber by the President with the consent of the Senate. This has been done but once—by Marshal McMahon in 1877; and the circumstances of that anti-republican manœuver were such that the whole idea of special dissolutions fell into decided disrepute. During the last year, however, there was much talk of whether France's Cabinet instability could be stabilized by the threat of dissolving the Chamber of Deputies, or whether in view of the temporary party allignments new elections ought not to take place. When the Painlevé Cabinet succeeded the Herriot Government in April, and when the Painlevé Cabinet in turn gave way to the Briand ministry, the newspapers canvassed the possibilities of an election. Between the majority of the Chamber and the majority of the Senate there were irreconcilable discords. How eliminate them, it was asked, except through universal suffrage? But the disrepute into which MacMahon had thrown the idea of special elections prevented any action from taking place, and in December this discussion gave way to a canvassing of the possibilities of a dictatorship which would temporarily subordinate Parliament and would run the country under a régime of administrative decrees.

ELECTORAL REFORM IN FRANCE

Legislative.—The fourth constitutional question that was to the fore in France related to electoral reform. On April 7, the Chamber of Deputies, by a vote of 390-183, passed a bill giving women the right to vote in municipal elections only. Woman suffrage has been a live issue in France, and twice since the War, the Chamber has acted favorably. Each measure has been rejected by the Senate. All the Cabinets since the last election, in May, 1924, have put reform of the election system prominently in their ministerial declarations, for there is general dissatisfaction with the present arrangement, which is a hybrid form of proportional representation. The Chamber is reluctant, however, for Deputies cannot exactly estimate their chances of reëlection if the existing method is changed, and there is hesitancy also because the new method proposed—really the old system of *scrutin d'arrondissement* or single member districts—is one which has always been subjected to a continuous fire of severe but legitimate criticism.

Problems.—With the exception of the relations between Church and State, electoral reform has been one of the most bitterly contested issues in French politics. Single member districts were decided upon in 1875, and lasted until 1885, when a list system was inaugurated with the Department as the district. This, however, was not coupled with any scheme of minority representation. The plurality party in each Department elected the entire delegation for the Department, and in 1889 single member districts were returned to. Discontent, however, did not lessen; of the 597 Deputies elected in 1910 all but 50 declared themselves against the arrondissement and in favor of various list systems, with or without proportional representation. The Senate refused to agree, however, and the War put electoral reform in abeyance. In 1919 the present law was passed. It greatly benefitted the Bloc National in the elections of 1919; it was equally favorable to the Cartel des Gauches in the elections of May, 1924, for a change of one thirtieth of the votes in the country resulted in a change of one third of the seats in the Chamber of Deputies.

Prospects. — There is, however, rather general agreement that the law is a bungling makeshift, and it has few defenders. Numerous attempts have been made to change it. The Senate has several times voted to return to the single-member district, and on June 18 last the Chamber voted for scrutin d'arrondissement by 295-265. Both the Chamber and the Senate seem to be agreed on the principle, and if they can agree on the text of a measure, the prolonged political jockeying will come to an end and the present electoral system will be scrapped. It should be said, however, that single member districts—a device used not unsuccessfully in England and the United States—are subject to disadvantages peculiar to France. The unstable Cabinet system, the centralized administrative organization of the country, and the ability of the Government, through the Minister of the Interior and the Prefects to interfere in elections result in a circle of collaboration between Ministers who want to hold on and Deputies who want to be reëlected. There is a constant rotation of favors which is encouraged by a system of one Deputy for a single small circumscription.

GERMANY

Presidential Election.—The successful operation of the Dawes plan has made it possible for Germany to abandon the extraordinary régimes, the states of siege, and the special financial procedure which have often been in existence since the adoption of the Weimar Constitution. Some difficulties have been experienced with the multiple party system and Cabinet instability. The most important constitutional event of the year in Germany was the presidential election, which took place on March 29 with a run-off election on April 26. A majority of nearly a million votes was cast by republican sympathizers, although Von Hindenburg, an anti-republican candidate, was elected by a considerable plurality. His tenure of office, however, has not been marked by any events which seem to negative in practice the theory of the German Constitution, which is for a titular executive as President—a President, that is to say, who has extensive powers on paper, but who can exercise them only with the consent of Cabinet Ministers responsible to the Reichstag. Presidential power, therefore, can be nothing more than influence. From another point of view, the election of Von Hindenburg was really a gain by the friends of the Weimar Constitution. The man who was the most important symbol of anti-republicanism and a monarchical restoration is put in office and made to support and abide by the forms of a republican framework of government. With their leader sworn to uphold the Constitution and acting loyally under its provisions, those eager for a monarchical restoration will find their propaganda much more difficult.

ENGLAND

Labor.—The most important constitutional questions in England related to the position of labor in the State, but there were several minor problems that were dealt with. On June 11, Mr. Baldwin announced to the House of Commons the creation of a new office—that of Secretary of State for the Dominions. He explained that for the present this portfolio would be held by the Secretary of State for the Colonies, with a separate Undersecretary for each division. The change is made in order to facilitate business with the Dominions, and is also not without significance from the standpoint of the Dominions, since they naturally would prefer to deal through a Secretary for themselves rather than through an officer charged with the supervision of all colonies.

House of Lords.—The House of Lords in May defeated a bill which would have permitted Peeresses in their own right to sit and vote in that Chamber. The Government opposed the measure on the ground that the admission of women to the House of Lords should not be dealt with separately, but should come up as part of a general scheme for the reconstitution of the House of Lords. The Baldwin Government has as yet brought forward no plan for the upper chamber, but it is obliged to do this by its declarations to party meetings and its administration will in all probability not come to an end before a bill is introduced to change the Parliament Act of 1911. It is not likely, however, that the Conservatives will use their tremendous majority to force this proposal through before a dissolution of Parliament and a general election at which one of the issues will be the reconstitution of the House of Lords. On how this should be effected there is no agreement, but it seems likely that a principal issue in the battle between Conservatives and Labor within the next few years will be over the kind of bicameral theory that England shall adopt.

Ratifying Treaties.—On November 18, 1925, the House of Commons ratified the Locarno agreement by passing a motion "That this House approves the ratification of the Treaty of Mutual Guaranty initialed at Locarno on October 16, 1925, and annexed to the final protocol signed on that day." From the constitutional standpoint this was important, since in legal theory foreign policy in England is a matter of executive concern. Treaties or other agreements need not be submitted to the House of Commons before they are ratified. The Labor Government during its tenure of office announced that it would permit a discussion of, and if desired a vote on, every treaty before it became binding, but Mr. Austen Chamberlain on taking office announced that the Conservative Government reserved the right of following a contrary course. The Treaty of Versailles was ratified by Parliament, and the proposed Anglo-American Guaranty to France contained a clause that it would go into effect only after Parliamentary approval. Mr. Chamberlain's action in respect of the Locarno agreement was therefore significant from the constitutional standpoint, and is probably one incident in an increasing share that the House of Commons will assert over foreign policy and international engagements.

Coal Settlement.—The threatened strike of the coal miners in July, and the possibility that the trouble would spread to the railway men and transport workers raised difficult problems for Mr. Baldwin's Government. These were settled temporarily by a Government subsidy to the coal industry in order to avoid reduction of wages, and the appointment of a Royal Commission to discover the facts and to make recommendations for action by Parliament. The solidarity of British Labor which was displayed by this crisis led to an examination of the constitutional powers that the British Government would have in an emergency.

Emergencies.—An important change had been made in the British Constitution in October, 1920, when Parliament passed the "Emergency Powers Act" which permits the executive to declare that a state of emergency exists and then to issue regulations "for securing the essentials of life to the community." Government Departments may be given such "powers and duties as His Majesty may deem necessary for the preservation of the peace" and action may be taken "for any other purposes essential to the public safety and life of the community." Offenders against the regulations are to be tried in courts of summary jurisdiction.

This statutory authority, as is evident, is quite broad. Under it England may have a state of siege. The law was applied during the coal strike of April, 1921, but its powers were sparingly used. After the coal strike last summer was avoided an Organization for the Maintenance of Supplies was created with the approval of the British Home Secretary. The O. M. S. has enlisted volunteers who undertake to maintain and protect the public services in an emergency and to enroll as special constables. The Labor Party has denounced this organization as "the most definite step toward organized Fascism yet made in this country" and Mr. MacDonald pointed out that "private enterprise was being entrusted to maintain order in such a way as to make a breach of order inevitable." Serious constitutional problems, however, are raised by the plans of the trade union movement for concerted action in the event, say, of a coal or railroad strike, and by the efforts of the Government to secure the conduct of essential public services when these are threatened with dislocation by industrial action.

Communists.—In November twelve Communists were convicted on charge of sedition and of "inciting divers persons to commit breaches of the Incitement to Mutiny Act (1797)." That statute had been almost forgotten. In 1797 Parliament had legislated for rather definite perils, and it was the manner even more than the fact of the Communist prosecutions that stirred up controversy over the propriety of the Government's action.

Trade Unions.—One conciliatory action by the Conservative Government in respect to the Labor movement was the decision not to proceed with the trade-union levy bill. This has been introduced by private Conservative members at several recent sessions of Parliament and provides that no moneys may be raised by trade unions for political purposes except through a separate political fund account which must be approved by a majority of the members. No member is to be liable to contribute to the fund unless he gives notice of his desire in writing. At the present time the trade unions raise funds for political purposes through the levy which is imposed unless trade unionists individually object, and these penny contributions are the financial backbone of the Labor Party. Mr. Baldwin and the Government, however, are more tolerant than the rank and file of the Conservative Party, and have prevented consideration of the measure.

CANADA

Among the issues in the Dominion election of October 29 was the future of the Canadian Senate. In recent years the Canadian Senate (which is composed of nominees for life by the Government within the limits set up by law) has rejected several important bills. These resistances have caused the Liberal Party to propose the reform of the upper chamber. Mr. Mackenzie King declared that if his party were successful in the elections it would introduce legislation similar to that of the Parliament Act of 1911 in Great Britain and proposed "that a measure which twice has been supported by the House of Commons shall not be defeated in the Senate on the third occasion it is brought before Parliament." The Canadian Constitution, however, can only be amended by legislation secured from the Imperial Parliament on the joint petition of both Houses of the Dominion legislature, and so long as this is the legal situation, the Senate can prevent impious hands from being laid upon it even if the electorate should seem to speak on upper chamber reform. Therefore it will be considerably delayed, and the defeat of the Liberals in the election of October 29 means that this agitation for a more attenuated bicameral theory will probably subside, at least until new incidents raise it in a more acute form.

IRELAND

The settlement of the Irish Boundary dispute had an indirect constitutional importance. Before the Commission began to function the Government of Northern Ireland had refused to appoint its Commissioner and the question was submitted to the Judicial Committee of the Privy Council as to whether the Crown "acting on the advice of Ministers of the United Kingdom" could instruct the Governor of Northern Ireland to make the appointment. The Privy Council held that the Governor of Northern Ireland could act only "as advised by his Ministers" and there was thus a quasi-legal determination of the theory of Cabinet responsibility and of the inability of the titular executive to act except on the advice of Ministers responsible to his Parliament. Holding as it did, the Judicial Committee of the Privy Council permitted the theory of Cabinet Government to become in a sense part of the constitutional law as well as of constitutional custom.

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SELECT DECISIONS ON CONTRACTS

BY H. NOYES GREENE

THE EDWARD THOMPSON COMPANY, NORTHPORT

What Law Governs.—Where the parties to a contract are not residents of the same state they may fix by their agreement whether it shall be governed by the law of the residence of one or the other of them.—(Farm Mortgage, &c., Co. v. Beale, [Neb.], 202 N. W. Rep. 877.)

Offer and Acceptance.—An offer to buy 25 cars of coal answered by an acknowledgment of an order for "25 or as near 25 as we are able to ship" does not form a contract and the buyer having received only 7 cars is not entitled to recover the excess over the contract price which he had to pay for 18 cars in the open market.—(Guyan Coal & Coke Co. v. Wholesale Coal Co., 299 Mich. 257.)

Delivery.—Delivery is ordinarily an essential element to the execution of a written contract. (*a*) Delivery is complete when the contract, being ready for delivery, is handled or sent to the promisee, with the intention at the time to pass the present title. (*b*) A mere manual transition of a paper to the obligee, without mutual intent to give validity to the paper, but with a mutual intent to the contrary, does not constitute delivery. (*c*) Where an instrument is prepared by a vendee or promisee to be signed by three parties, with a request that two of them sign it and then transmit it to the party to be signed by him and returned to the vendee or promisee, and where such third party, on receiving such instrument, declines to sign the same, but instructs his clerk or secretary to return it to the vendee or promisee unsigned, which is done, these facts do not constitute a delivery of such instrument so as to pass title to the property intended to be conveyed thereby to such vendee or promisee.—(Peacock v. Horne [Ga.], 126 S. E. Rep. 813.)

Past Consideration.—The rule that a past consideration which imposed no legal obligation when it was furnished will not support a promise was applied to a promise by an employer to pay to a retiring employee a salary for life in consideration of his long and faithful service, the service having been paid for, so far as legal obligation goes, by the salary paid at the time of his employment.—(Shear Co. v. Harrington [Tex.], 266 S. W. 554.)

Fraud or Mistake—Signature Without Reading.—The courts have had frequent occasion during the past year to reiterate the rule that one who signs a writing without reading it cannot assert fraud or mistake as to its contents if he was in no way prevented from reading it.—(See for example, Widencamp v. Patterson [Ga.], 127 S. E. Rep. 158; Melner v. Earl Fruit Co. [Idaho], 232 Pac. Rep. 581; Brenard Mfg. Co. v. Jones [Ky], 269 S. W. Rep. 722.)

Duress—Threat of Suit.—Where a contractor fails to perform a building contract, and executes a new contract to avoid a suit for breach of the first, he cannot urge that threat as duress avoiding the second contract.—(Irwin v. Weikel [Pa.], 127 Atl. Rep. 612.)

Legality — Influencing Municipal Legislation.—It appears (in Goodrich v. Northwestern Tel. Co. [Minn.], 201 N. W. 290), that a contract was made between a telephone company and some 18 of the leading men of a small city including the mayor and a majority of the city council with respect to telephone rates and service. The contract was made at a time when a rival company was seeking a franchise. It contained the following clause: "In consideration of the concessions made as aforesaid, and in view of the general compromise and settlement of the telephone situation, second parties agree to use all reasonable means to prevent telephone agitation in the city of Anoka and endeavor to secure and cause to be maintained friendly relations between the first party and its patrons." The court held the agreement to be invalid, saying: "Such extraneous secret influence on legislative officials received, perhaps, in the best of faith as coming from a free and untrammeled motive, is dangerous in the extreme. It was, in essence and in effect, against the soundest principles of public policy. This element was not disclosed by the writing itself. Why should the court uphold a contract based upon a secret consideration, which, if known, would tend largely to defeat its purpose? This is the best evidence of the insidious tendency of such agreements. In fact, this should be regarded as a conclusive badge of corrupt motive; not in the sense that there was in fact such, but in the sense that, under such circumstances, the court will not listen to a claim of good motive. Judicial aid will not be given to either party to such an agreement, not because it wants to help either party, but because the agreement is tainted."

Public Policy—Contract to Support Illegitimate.—A contract by the putative father of a child born out of wedlock to support and educate it is not immoral or contrary to public policy.—(Thayer v. Thayer [N. C.], 127 S. E. Rep. 533.)

Statute of Frauds—Sale of Goods Not in Existence.—The statute of frauds applies to the sale of goods not in existence unless they are to be manufactured specially for the buyer. Accordingly the statute applies to a sale of garments to be made, where they are to be of the seller's stock models, suitable for its trade generally.—(Burman Stores Co. v. Hirsch [N. Y.], 240 N. E. Rep. 212.)

Contracts of Infants—Home as Necessary.—As an extension of the rule that lodging is a necessary for which an infant may contract, the purchase by a married infant of a home at a fair and reasonable price and suited to his means and station in life is a contract for a necessary which he is not entitled to disaffirm. —(Johnson v. Newberry [Tex.] 267 S. W. Rep. 476.)

Contract of Infant—Misstatement as to Age.—Misrepresentation by an infant as to his age does not preclude a plea of infancy to avoid a contract. —(J. Pierce & Co. v. Wallace [Mass.], 146 N. E. Rep. 658. To the contrary: Downey v. Northern Pac. R. Co. [Mont.], 232 Pac. Rep. 531.)

Contract of Married Woman—Becoming Surety for Husband.—Where a married woman borrows money from her husband's creditor and pays it to him in satisfaction of the husband's debt she in effect becomes surety for him in violation of a statute forbidding her so to do, and the creditor cannot recover on new obligation to repay the money.—(Vanderslice v. Merchants Bank [Ala.], 104 So. Rep. 663.)

Contract of Employment—Notice of Existence of Strike.—To warrant a conviction of an employer under a statute forbidding advertisement for labor without stating that a strike exists, if such is the fact, it must appear that there was an actual existing strike and if the employer is running his plant at normal capacity and experiencing no difficulty he may be justified in assuming that the strike is at an end though picketing of his premises is kept up. Whether he is so justified is a question of fact for the jury.—(West Allis Foundry Co. v. State [Wis.], 202 N. W. 302.)

Contract of Employment—Bonus.—A promise of an annual bonus on a profit-sharing basis to employees is not without consideration as to employees in service at the time it is made since continuance in the employment may be thereby secured.—(Wellington v. Curran Printing Co. [Mo.], 268 S. W. Rep. 396.)

Sale—Warranty on Sale of Second-Hand Automobile.—On the sale of a second-hand automobile there is an implied warranty that the automobile is in condition to run.—(Crawford v. Abbott Auto Co. [La.], 101 So. Rep. 871.)

Sale of Food—Warranty of Fitness.—There is no implied warranty of fitness for human consumption on the sale of food between manufacturer and ultimate user but there is such a warranty implied in a sale by a dealer to the consumer.—(Pelletier v. Dupont [Me.], 128 Atl. Rep. 186, applying Uniform Sale Act.)

Sales—Warranty on Sale of Hog Cholera Serum.—A seller of hog cholera serum does not impliedly warrant that its use will protect hogs from the cholera.—(Balhorn v. Pilman Moore Co. [Ia.], 200 N. W. Rep. 601.)

Conditional Sales—Liability of Automobile in Hands of Purchaser.—An automobile conditionally sold in one state cannot be seized for the debts of the purchaser in another.—(Tennessee Auto. Corp. v. American Nat. Bank [Ky.], 266 S. W. Rep. 54.) Nor may an automobile so sold be forfeited for illegal use in the liquor traffic if the seller was not privy thereto.—(Edwards v. State [Ala.], 104 So. Rep. 255.)

SELECT DECISIONS ON TORTS

By H. Noyes Greene

The Edward Thompson Company, Northport

Assault and Battery—Acts of Clerk in Store.—A clerk in a store believing that a person has purloined goods therefrom is entitled to do no more than to detain him until an officer can be called, and if he seizes the suspected thief, attempts to put his hand in his pocket and calls him a thief and a liar, he is guilty of an assault and battery for which the proprietor is liable if the clerk is acting within the scope of his employment.—(Piggly-Wiggly Alabama Co. v. Rickles [Ala.], 103 So. Rep. 860. See to the same effect McCrory Stores Co. v. Satchell [Md.], 129 Atl. Rep. 348.) In an aggravated case of this kind it was held that punitive damages may be recovered, and a verdict for $5,600 was sustained.—(McClure Ten Cent Store v. Humphries [Ga.], 127 S. E. Rep. 151.)

Assault and Battery—Punishment by School Teacher.—Where a boy living near the school goes to his home at the close of school and then annoys little girls on their way from school he is, even while on his parent's premises, so far within the jurisdiction of the school authorities that the teacher may at school inflict corporal punishment for the offense and is not guilty of assault in so doing.—(O'Rourke v. Walker [Conn.], 128 Atl. Rep. 25.)

Assault and Battery—Interference with Ku Klux Klan Parade.—Where a parade of members of the Ku Klux Klan dressed in robes and hoods is proceeding down a city street in an orderly manner violating no law and making no offensive demonstration it is unlawful for a policeman to attempt to raise the mask of one of the paraders, and a blow with the fist by another parader, to repel the attempt, is a proper act of self defense.—(Shields v. State [Wis.], 204 N. W. Rep. 486.)

Fire—Liability of Person Owning Premises Where It Started.—One is not liable for fire starting by accident on his premises and escaping to those of his neighbor in the absence of negligence. Reasonable care must be exercised to extinguish such a fire if it becomes a source of danger, and failure in this respect will create legal liability.—(Orander v. Stafford [W. Va.], 127 S. E. Rep. 330.)

Automobiles—Liability of Owner to Guest.—The owner of an automobile owes a duty of reasonable care toward one riding with him as an invited guest.—(Munson v. Rupker [Ind.], 148 N. E. Rep. 169; Marcinowski v. Sanders [Mass.], 147 N. E. Rep. 275; Alley v. Wall [Mo.], 272 S. W. 999; Parewonsky v. Joffe [N. J.], 129 Atl. Rep. 142.)

Liability of Householder—Who Is Invitee.—A person going from house to house to leave coupons entitling the housewives to free samples of a food product is a bare licensee and not an invitee, and must take the premises as he finds them. The householder owes him no duty except to refrain from acts of affirmative negligence toward him.—(Stacy v. Shapiro, 209 N. Y. Supp. 305.)

Stores—Duty to Keep Premises Safe.—The proprietor of a store owes to those entering as customers a duty to use reasonable care to keep the premises safe.—(Chichas v. Foley Bros. Grocery Co. [Mont.], 236 Pac. Rep. 361.)—This duty extends however only to those parts of the store which customers are invited and expected to use.—(Wall v. F. W. Woolworth & Co. [Ky.] 272 S. W. Rep. 730.)

Automobiles—Liability of Owner for Act of User.—In Plaumbo v. Ryan, 210 N. Y. Supp. 225, the court applied a New York statute of 1924 providing that an automobile owner is liable for the negligence of any person using the car with his permission. This statute overturned the previous New York decisions which repudiated the so-called "family purpose doctrine" and held the owner liable only when the car was being used in his business. The statute was construed (Feitelberg v. Matuson, 208 N. Y. Supp. 786), to cover the case of a car operated by a friend of a borrower thereof. The court (in Keller v. Federal Truck Co. [Tenn.], 269 S. W. Rep. 914) applied a recent Tennessee statute which creates a lien on an automobile for damages done by one using it with the owner's permission.

Libel and Slander—Letter of Government Employee to Senator.—Where a United States Senator writes to a District Manager of the Veterans' Bureau asking information as to complaints made with respect to the treatment of disabled soldiers, an answer by the District Manager containing reflections on the maker of the complaint which are relevant to the inquiry is qualifiedly privileged.—(National Disabled Soldiers' League v. Haan 4 Fed. Rep., 2d, 436.)

Automobiles—Duty of Husband to Control Wife's Driving.—It has been held to be a question for the jury whether a husband is negligent in not attempting to prevent his wife, who was driving the car in which he was riding from making an imprudent effort to pass another automobile.—(Johnson v. Newman [Ark.], 271 S. W. 705.)

Restaurant Keeper—Care in Preparation of Food.—A restaurant keeper is under an obligation to use due and reasonable care to prevent any foreign substance from getting into food to be served by him to his customers, and is liable for a failure so to do. It is immaterial that at the time the negligent act was committed the person to whom the contaminated food is ultimately served is unknown and has not yet entered the restaurant.—(Kennedy v. Wong Lin [N. H.], 128 Atl. Rep. 343.)

ADMINISTRATIVE LAW

By H. Noyes Greene

The Edward Thompson Company, Northport

Since procedural matters are so largely controlled by local statute, it is rarely that a state decision thereon is of any general value. The cases here presented are therefore drawn entirely from the decisions of the United States Supreme Court, and in the main confined to administrative law in its broader sense rather than as embracing only mere rules of court procedure.

Jurisdiction—Amount in Contro-

versy.—A phase of the vexed question of aggregating several claims to make up the amount in controversy requisite to federal jurisdiction was settled (in Sovereign Camp W. O. W. v. O'Neill, 45 U. S. S. Ct. Rep. 49.) Some score or more of members of the complainant society had claims against the society, no one of them amounting to $3,000. The society, with appropriate allegations of conspiracy, sued the claimants jointly to enjoin the enforcement of the claim. It was held that more than $3,000 was involved, giving the federal district court jurisdiction, in view of the allegations that the claims were not only groundless but were being urged pursuant to a conspiracy to harrass the complainant society in its business.

Federal Jurisdiction—Suit by Reserve Bank.—A suit by a Federal Reserve Bank, authorized by and incorporated under the laws of the United States (see Fed. Stat. Ann. 1918 Supp. p. 470), is one arising under the laws of the United States of which the Federal district courts have jurisdiction.—(Sowell v. Federal Reserve Bank, 45 U. S. S. Ct. 528.)

Jurisdiction Auxiliary to Mortgage Foreclosure.—The power of a court which has jurisdiction to foreclose a mortgage on corporate property to adjust other claims against the property was declared (in Central Union Trust Co. v. Anderson County, 45 U. S. S. Ct. Rep. 427). In that case the United States District Court, having foreclosed a mortgage on a railroad property was about to direct a sale and the execution of a deed when it appeared that certain parties had claims against the railroad property whose assertion would jeopardize its future operation. The Supreme Court held that the lower court had power to try the validity of these claims by proceedings ancillary to the foreclosure suit and if they were found to be groundless to decree the sale free and clear of them.

Review of Official Decisions—Federal War Risk Insurance.—(In Silberschein v. U. S., 45 U. S. S. Ct. Rep. 69), it was sought to review in the federal courts a ruling of the Director of the Veterans' Bureau reducing an award to nothing. The Court in refusing to review the facts said: "In the light of the prior decisions of the court we must hold that his decision of such questions is final and conclusive and not subject to judicial review, at least unless the decision is wholly unsupported by the evidence or is wholly dependent on a question of law or is clearly arbitrary or capricious."

The Federal Labor Board—Its Decisions Unenforcible.—It was for some time thought that the Federal Labor Board created as part of the Esch-Cummins Act of Feb. 28, 1920 (see Fed. Stat. Ann. 1920 Supp. p. 87) had in it at least the germs of a solution of the labor problem as applied to interstate carriers, giving a compulsory forum in such matters. At least one threatened strike was averted by virtue of that interpretation. But it has been established by two authoritative decisions of the current year that the decisions of the Board possess no binding force and cannot be enforced by federal injunctive process.—(Penn. R. Co. v. Labor Board, 261 U. S. 72; Federation No. 90 v. Penn. R. Co., 45 U. S. S. Ct. Rep. 307.) The court said in the case last cited that the act may be searched in vain for "any intimation that the disputants in the controversies to be anticipated were in any way to be forced into compliance with the statute or with any judgments pronounced by the Labor Board except through the effect of adverse public opinion."

Creation of Presumption by Legislature.—An interesting application of the power of the legislature to create prima facie presumptions of fact which shall be binding on the courts is found (in Cockrill v. California, 45 U. S. S. Ct. Rep. 490), upholding a provision of the California Alien Land Law providing that when an alien ineligible to citizenship provides the consideration for a conveyance to one entitled to hold realty it shall be presumed that the conveyance was made with intent to avoid escheat.

Judicial Notice—Decreased Purchasing Power of Money.—The Supreme Court declared in (Banton v. Belt Line Ry. Corp., 45 U. S. S. Ct.

Rep. 534), that "it is well known and the court will take judicial notice of the fact" that the purchasing power of money is much less than in 1917.

Rules of Court—In Bankruptcy.—The power granted to courts of bankruptcy to prescribe such rules as are necessary to carry the act into effect, given by section 30 of the Bankruptcy Act (see 1 Fed. Stat. Ann. p. 852), was sharply limited by the decision (in Meek v. Centre County Banking Co., 45 U. S. S. Ct. Rep. 560), holding that this section does not allow a rule which is in effect one of substantive law, such as a rule allowing less than all the members of a partnership to file a petition against the firm without the consent of the others.

Pardon—In Contempt Cases.—The question, much discussed and never before authoritatively decided, of the power to pardon one committed for contempt of court, was settled in (Ex parte Grossman, 45 U. S. S. Ct. Rep. 332). The court held that the President has power to pardon for a "criminal" contempt viz. one whose gravamen consists in the defiance of the lawful powers of a court, but not for a civil contempt consisting of the violation of an order made for the benefit of a party. The specific contempt as to which the power to pardon was sustained was the violation of an injunction against the maintenance of a "liquor nuisance" issued under the provisions of the Volstead Act.

Jury Trial in Contempt.—It was held (Michaelson v. U. S., 45 U. S. S. Ct. Rep. 18) that though the power to punish for contempt is inherent in courts of record, that power is not infringed by the provision of the Clayton Act (Act Oct. 15, 1914, sec. 22, 6 Fed. Stat. Ann. p. 140), giving a right to demand a jury trial in cases of contempt growing out of violation of an injunction issued in labor disputes where the act charged as a contempt also constitutes a criminal offense under the laws of the United States or of the state where the act was committed. The decision is carefully confined to the precise point at issue and cannot be said to be an authority for the proposition that all contempt cases may be made triable before a jury though the reasoning of the court would seem to point in that direction. Incidentally, it was held that the provision of the Clayton Act for a jury trial is mandatory.

Witnesses—Privilege Against Self Incrimination. — The constitutional protection of witnesses against self incrimination applies in civil as well as criminal proceedings, and is applicable to a bankrupt undergoing examination as to his assets. It does not, however, relieve him from the duty imposed by the Bankruptcy Act of surrendering his books and papers, these being part of his estate (McCarthy v. Arndstein, 45 U. S. S. Ct. 16). The court said in conclusion: "If Congress should hereafter conclude that a full disclosure of the bankrupt estate by the witnesses is of greater importance than the possibility of punishing them for some crime in the past, it can as in other cases confer the power of unrestricted examination by providing complete immunity."

IMPORTANT LEGISLATION

By H. Noyes Greene

The Edward Thompson Company, Northport

Federal Legislation. — The sixty-eighth Congress closed its second session on March 4, 1925. Its record was not one of notable achievement, most of the legislation being either routine or departmental. Of the numerous bills which became laws only five seem to deserve emphasis, viz.:—

"The Arbitration Act," making valid and enforcible written agreements for the arbitration of disputes arising out of contracts, maritime transactions or commerce among the States or Territories or with foreign nations.

"The Corrupt Practices Act," regulating expenditures by candidates for Congress.

"The Air Mail Act," designed to encourage commercial aviation and to authorize the Postmaster General to contract for air mail service.

An Act providing for the establishment of a probation system in the United States courts.

An Act reclassifying the salaries of postmasters and employees of the Postal Service and in general increasing the pay of postal employees.

UNIFORM STATE LEGISLATION

Decided progress was made in the year 1925 toward the accomplishment of uniformity of law among the States and Territories. There were fourteen adoptions in the various jurisdictions of Uniform Laws prepared and approved by the National Conference of Commissioners on Uniform State Laws. In addition, certain Conference amendments to the Uniform Sales Act and the Uniform Warehouse Receipts Act were adopted in three different states. The National Conference held its thirty-fifth annual meeting on August 25 and promulgated four new Acts as follows: Uniform Arbitration Act; Uniform Interparty Agreement Act; Uniform Joint Obligations Act; Uniform Written Obligations Act. Naturally none of these new acts has yet been adopted by the States, with the exception of the Arbitration Act, which was adopted by Nevada prior to its final approval by the Conference. In addition to these four new acts, the Conference is responsible for 30 Uniform Laws, the present situation with respect thereto being shown in the following tabulation:

Uniform Sales Act.—No adoptions in 1925, but Ohio and Wisconsin adopted the amendments to sections 32 and 38 of the act approved by the National Conference in 1922. Iowa and New York also amended the Act in other respects. The Act is in force in 27 jurisdictions.

Uniform Conditional Sales Act.—Adopted by Pennsylvania and reënacted by West Virginia in 1925. The Act is now in force in nine jurisdictions.

Uniform Warehouse Receipts Act.—No adoptions in 1925, but Ohio and Wisconsin adopted the amendments to sections 20, 40 and 47 of the Act approved by the National Conference in 1922, and Idaho adopted the Conference amendments to sections 20 and 47. The Act is in force in all jurisdictions but Georgia, Hawaii, Kentucky, New Hampshire and South Carolina.

Uniform Bills of Lading Act.—No adoptions in 1925. The Act is in force in 25 jurisdictions.

Uniform Negotiable Instruments Act.—Idaho amended section 5 of the Act in 1925. Georgia having finally adopted the Act in 1924, it is now in force in every jurisdiction but Porto Rico.

Uniform Stock Transfer Act.—Tennessee reënacted the Act in 1925 to cure a defect in the title, and Michigan amended section 15 to cure an error therein. The Act is in force in 18 jurisdictions.

Uniform Partnership Act.—No adoptions in 1925. The Act is in force in 16 jurisdictions.

Uniform Limited Partnership Act.—South Dakota adopted the Act in 1925 and Massachusetts amended section 2. The Act is now in force in 14 jurisdictions.

Uniform Desertion and Nonsupport Act.—West Virginia reënacted the Act in 1925, and Massachusetts and Vermont made certain amendments thereto. The Act in more or less modified form is in force in 24 jurisdictions.

Uniform Acknowledgments Act.—No adoptions in 1925. The Act is in force in Louisiana, Massachusetts, Michigan and Tennessee.

Uniform Acknowledgments Act, Foreign.—No adoptions in 1925. The Act is in force in Alaska, Louisiana, Maryland, Nevada, New Hampshire, Tennessee and Wisconsin.

Uniform Aëronautics Act.—Idaho and South Dakota adopted the Act in 1925. Although approved by the National Conference only in 1922, the Act is now in force in 10 jurisdictions.

Uniform Child Labor Act.—No adoptions in 1925, but Massachusetts made certain amendments thereto.

The Act is in force in Delaware, Kentucky and Massachusetts.

Uniform Cold Storage Act.—No adoptions in 1925. The Act is in force in Illinois, Maryland, Massachusetts, Tennessee, Utah and Wisconsin.

Uniform Declaratory Judgments Act.—South Dakota and Utah adopted the Act in 1925. It is now in force in 8 jurisdictions.

Uniform Extradition Act.—No adoptions in 1925. The Act is in force in 8 jurisdictions.

Uniform Fiduciaries Act.—Idaho, Utah and Wisconsin adopted the Act in 1925. It is now in force in 9 jurisdictions.

Uniform Flag Act.—No adoptions in 1925. The Act is in force in 9 jurisdictions.

Uniform Foreign Depositions Act.—No adoptions in 1925. The Act is in force in 10 jurisdictions.

Uniform Fraudulent Conveyance Act.—New York and Utah adopted the Act in 1925. It is now in force in 14 jurisdictions.

Uniform Illegitimacy Act.—Iowa and New York adopted the Act in 1925. It is now in force in 6 jurisdictions.

Uniform Land Registration Act.—No adoptions in 1925. The Act in modified form is in force in Georgia, Utah and Virginia.

Uniform Marriage and Marriage License Act.—No adoptions in 1925. The Act is in force only in Wisconsin.

Uniform Marriage Evasion Act.—No adoptions in 1925. The Act is in force in Illinois, Louisiana, Massachusetts, Vermont and Wisconsin.

Uniform Occupational Diseases Act.—This Act has not been adopted in any jurisdiction.

Uniform Proof of Statutes Act.—No adoptions in 1925. The Act is in force in 7 jurisdictions.

Uniform Vital Statistics Act.—Arizona adopted the Act in 1925. It is also in force in West Virginia.

Uniform Wills Act, Foreign Executed.—No adoptions in 1925. The Act is in force in 10 jurisdictions.

Uniform Wills Act, Foreign Probated.—No adoptions in 1925. The Act is in force in Illinois, Louisiana and Wyoming.

Uniform Workmen's Compensation Act.—No adoptions in 1925. The Act in more or less modified form is in force in Hawaii, Idaho and Vermont.

OTHER STATE LEGISLATION

Among the mass of statutes enacted by more than forty state legislatures meeting in regular session in the year 1925, it is difficult to observe any general trend of legislation or to pick out laws having other than local interest. Mention may be made of a very few, as follows:

Constitution.—Acts providing for the teaching of the United States Constitution in the schools or otherwise designed to promote patriotism and Americanization were adopted in Arizona, Colorado, Connecticut, Indiana, Kansas, New Jersey, Oregon and Wyoming.

Bible.—Acts providing for Bible reading in the public schools were adopted in Delaware and Idaho.

Sterilization.—Acts providing for the sterilization of feeble-minded or criminal persons were adopted in the states of Idaho, Minnesota, Oregon and Utah.

Miscellaneous.—Other subjects receiving more than usual legislative attention were Blue Sky securities, Coöperative Marketing, Gasoline taxes, Unlawful Searches and Seizures, and Zoning.

PROHIBITION ENFORCEMENT

BY F. ERNEST JOHNSON

EXECUTIVE SECRETARY, FEDERAL COUNCIL OF CHURCHES OF CHRIST IN AMERICA

Enacting Measures.—National prohibition in the United States exists through interrelated measures: first, the Eighteenth Amendment to the Constitution, which became effective January 17, 1920, after being ratified by decisive, and in most cases overwhelming, majorities in 46 States; second, the National Prohibition Act (the Volstead Act) which became law also on January 17, 1920. The Volstead Act had been vetoed by President Wilson, but was passed immediately over his veto. Third, this act was amended on November 23, 1921, by the Willis-Campbell Act, which strengthened certain of the enforcement features.

The Eighteenth Amendment prohibits the manufacture, sale and transportation of intoxicating liquors for beverage purposes within territory subject to the jurisdiction of the United States, and all importation or exportation thereof for such purposes. The National Prohibition Act defines an "intoxicating" liquor as one containing one-half of 1 per cent., or more, of alcohol. This act was upheld by the Supreme Court, June 7, 1920, two justices dissenting from the opinion.

A marked reduction in the consumption of liquor between 1917 and 1920 was due to wartime restrictions placed on the manufacture of liquors, in the interest of food conservation, and also to the operation of the Wartime Prohibition Act which was at least nominally in force between July 1, 1919, and January 17, 1920.

Previous State Action. — These three measures were not abnormal or revolutionary. Prior to the ratification of the Eighteenth Amendment the liquor traffic had been progressively curtailed by state action, including both state prohibition laws and the exercise of local option by political units within the states. Thirty-three States and the territories of Alaska, Porto Rico and Hawaii had already passed prohibition laws—five states in 1918, four in 1917, four in 1916, five in 1915, five in 1914, and the rest in earlier years. Prohibition had been enacted by Congress for Indian reservations, for the District of Columbia and for the army. It is estimated that at the time national prohibition took effect 68.1 per cent. of the population of the United States was living in dry territory. The remaining 31.9 per cent., however, included the largest and most heterogeneous population centers, which offer much more difficult enforcement problems.

The Eighteenth Amendment gives concurrent power of enforcement to Congress and to the states, and 47 states have passed laws more or less stringent in support of the National Prohibition Act. Maryland alone has declined to pass such a law, although Maryland was one of the first states to ratify the Eighteenth Amendment; but the New York statute was repealed in 1923 and the Nevada statute has been declared unconstitutional, for purely technical reasons, by the Supreme Court of that state, leaving 45 in force.

Federal Enforcement Machinery. —Federal enforcement of prohibition is lodged in the Treasury Department, under the Bureau of Internal Revenue. The enforcement organization is known as the Prohibition Unit and is headed by the Commissioner of Prohibition. The Department of Justice is responsible for the trying of cases arising under the law, but the gathering of evidence is the responsibility of the Prohibition Unit.

Enforcement of prohibition has become one of the major tasks of the federal government, due to the extensive development of an illicit liquor industry which has now acquired extensive proportions. The present year, 1925, has brought a generally recognized crisis with reference to prohibition, and a complete reorganization of the enforcement machinery and program of the federal government has been effected in order to meet the situation. The major features of the reorganization are as follows.

Reorganization.—Supervision of enforcement has been placed in the hands of a newly appointed Assistant Secretary of the Treasury, who, while without statutory authority, has by administrative action been given executive responsibility. This arrangement brings the whole procedure of enforcement directly under the eye of the Secretary of the Treasury and the President. Along with this centralization of authority, so far as the higher officials of the government are concerned, has gone a decentralization of responsibility throughout the enforcement organization. Previously, there was a dual organization—a body of prohibition agents assigned to state directors, and a "mobile force" of agents working independently of the state directors and under "divisional chiefs." Close supervision of all these officers was maintained by the headquarters organization at Washington. The new plan places the agents under district administrators who have full responsibility for the administration of the law in their districts. Each administrator is given a free hand and is held accountable for results. The plan is simpler than the previous one and is intended to increase responsibility and expedite procedure. Its inauguration has been characterized by emphasis upon efficiency, preoccupation with the more important cases, elimination of propaganda, and increasing independence of influences in the congressional lobby.

Concurrent Jurisdiction.—The present year has also witnessed an increasing emphasis upon the distinction between the functions of the federal and state governments with reference to prohibition enforcement. Hitherto there has been little effort to define these functions. The Coolidge administration is insisting upon the natural limitation of federal action and authority and the necessity of preserving the responsibility of local governments. The trend of political thought and practice in America is manifestly anti-federal and it is seriously affecting the popular conception of the federal government's duties with reference to prohibition.

This political trend has been strongly supported by cumulative experience in the enforcement of the National Prohibition Act. It has been found that the resources of the federal government in administrative and judicial machinery are sufficient to cope successfully only with what may be called the "wholesale" aspects of the enforcement problem—smuggling, the withdrawals of bonded liquors, the diversion and conversion of industrial alcohol to beverage uses, interstate transportation of liquors, and the major conspiracies to violate the law, some of which are of giant proportions. The restraint of these activities is almost exclusively a federal task. But the "retail" phase of the problem is coming to be regarded as only incidentally a task for the federal government. For this, state and local officials must be responsible.

This distinction is accentuated by the operation of our dual system of government. By the provisions of the Federal Judicial Code, cases arising under the Volstead Act, except in the abatement of nuisances, must be brought in a federal court, and all federal cases are tried, if at all, by jury. Thus, the administration of the police phases of the prohibition law becomes exceedingly difficult where offenses are very numerous, save as full coöperation is given by state and local officials. Where, as in New York and Maryland, there is no state enforcing statute, the administration of the National Prohibition Act is hampered to an almost fatal degree.

Smuggling.—The two most difficult tasks of enforcement so far as the federal government is concerned are the elimination of smuggling and the control of industrial alcohol. The former is not considered to be so important an element in the situation from a quantitative point of view as it is from the political and moral point of view. Prior to the present year all efforts at breaking up "rum row" on the Atlantic seaboard were inadequate and almost futile, chiefly because the Coast Guard was so poorly equipped for the purpose. During the spring and summer of 1925, by means of new equipment secured through a special appropriation by Congress, a vigorous attack was made on the smuggling fleet off Long Island and the New England coast, which resulted in a considerable curtailment of smuggling operations.

The value of liquors smuggled into the United States has been estimated by a government expert at $40,000,000 in 1924. There is, however, no basis for accurate judgment in this matter. The importation of liquors into island territory adjacent to the United States rose to a startling figure following the adoption of prohibition by this country, and the inference from this is clear. Canada has also furnished large quantities of liquors to the United States in violation of our laws. The smuggling of whiskey into New York from Great Britain became an international scandal as did the operations between Cuba and our southern Atlantic ports. Treaties have now been negotiated with a number of countries which are aiding materially in checking this illicit flow of liquor. The problem, however, seems not yet to have been solved with any degree of conclusiveness.

Industrial Alcohol.—The problem of industrial alcohol arises from the fact that great impetus has been given to the alcohol industry during recent years by a growing legitimate demand. The National Prohibition Act charges the Bureau of Internal Revenue not only with the prevention of traffic in alcoholic beverages but with the fostering of the industrial alcohol industry. Enormous quantities of alcohol are regularly denatured according to special formulæ many of which do not preclude subsequent conversion by illicit processes into beverage alcohol. The industry is controlled through a permit system and many abuses have arisen in connection with it.

Cereal Beverages.—The manufacture of cereal beverages, involving as it does the manufacture of "high-powered" beer and a subsequent dealcoholizing process to bring the product within the legal limit of alcoholic content, has also caused the government much difficulty. The Treasury Department has now worked out a plan which is awaiting congressional action whereby, through a nominal tax on the product, the cereal beverage plants will be open to inspection and consequently subject to control.

Home Brew.—The extent of small-scale manufacture of "moonshine" and "home brew" no one can estimate. Home manufacture for home consumption has been very generally disregarded by the government, although such manufacture is illegal if the product is not a "non-intoxicating fruit juice." The one-half-of-one-per-cent. rule does not apply here and there is no criterion of illegality for purposes of enforcement. It seems clear, in any case, that with increasing effectiveness of federal enforcement and the gradual shutting off of major sources of supply the ultimate test of prohibition will appear in the ability of a "cellar and attic" industry to maintain itself. The real strength of the demand for illicit liquor will then be measurable.

Social Effects.—A number of attempts have been made during the year to appraise the prohibition régime from a social point of view and to determine the trend of the social consequences of the enactment of the prohibition law. It is generally agreed that as measured by crime statistics (especially, arrests for drunkenness), prison population, deaths from alcoholic diseases, cases of alcoholic psychosis, the rate of dependency due to alcoholism, etc., the early salutary effects of prohibition, which were very marked, have suffered a considerable reduction. The reaction is very apparent in statistical records from 1920-1923 inclusive. Figures for 1924 are in general more favorable. In particular, the death rate from alcoholism for the registration area (which now includes 38 states) has, according to incomplete tabulations of the Census Bureau, declined during 1924 for the first time since 1920. It does not yet appear, however, whether on the whole the crest of the reaction has been reached.

Causes of Reaction.—The reasons for the anti-prohibition reaction are, presumably: (1) the gradual development of a powerful, well financed and highly resourceful illicit liquor industry, whose development has required several years; (2) the tendency of those elements in the community that were chiefly responsible for the adoption of prohibition to regard the task as accomplished with the enactment of the law and to neglect the supporting activities of moral education and the organization of sentiment; and (3) the psychological revolt on the part of large numbers of people who have grown restive and rebellious under the restrictions of the law.

Favoring Prohibition.—It is important to note that while the enforcement of prohibition presents a country-wide problem, there are many sections in which it has already been reduced to manageable proportions and where the question is without doubt a closed issue. Moreover the great social, economic and industrial benefits resulting from prohibition are generally admitted, and the passing of the saloon is almost universally acclaimed as an undoubted boon. While it is quite impossible to measure the effect of prohibition upon business conditions or upon living conditions generally, because so many other potent influences have been operative during the post-war period, the fact that such salutary effects have been experienced by the nation at large is abundantly attested.

Evidences of Public Sentiment.—Controversy is continually going on as to the trend of public sentiment with reference to the prohibition régime. Certain indications are furnished by the success and failure of specific legislative proposals at Washington and in the states. Indiana, which is regarded as one of the states in which prohibition sentiment is strongest, enacted early in the year a "bone dry" law containing more drastic provisions than those of the Volstead Act. The majority was but 8,983, but it reversed a previous "wet" majority of 103,876, and therefore on the face of the returns represented a distinct gain in "dry" sentiment.

As for Washington, each Congress since national prohibition was adopted has been notably "dry" and no efforts to "liberalize" the National Prohibition Act have been taken seriously, while a number of measures designed to make enforcement more effective have been passed. Thus the trend of political sentiment, as measured by legislation, appears to be in the direction of maintaining and enforcing prohibition.

The 69th Congress gives some evidence of a tendency to consider more seriously proposals to modify the law. At the present writing, however, there is no indication that the increased intensity of debate reflects a change in potential voting. Nevertheless, there are reasons to believe that public opinion has not been unaffected by the crisis over prohibition enforcement. The dissatisfaction manifests itself chiefly in a widespread feeling that the flagrant disregard of the prohibition law is breaking down respect for law and government generally. An effort will be made by supporters of the Volstead Act to make the Prohibition Unit an independent bureau in the Treasury Department and to place all prohibition agents under the civil service.

Cost of Enforcement.—The cost of federal prohibition has been the subject of much dispute and many plainly excessive estimates have been given. Excluding the cost to the states, which cannot be properly charged against federal prohibition, and the expenditure of the Department of Justice on account of the Volstead Act, for which there is no special appropriation, the administration of the law is costing the United States for the fiscal year 1926, $19,319,817. This amount includes appropriations for the Prohibition Unit and that portion of the Coast Guard's operating expense that is chargeable to the suppression of smuggling.

Moral Question.—It is generally agreed that the problem of prohibition is mainly a moral and political problem, since the economic and industrial benefits of the outlawing of the liquor traffic are clear. And there is also a growing consensus among the friends of the prohibition régime that if it is to be made increasingly effective there must be a new emphasis upon social and moral education in order that the legislative reform may find permanent support in the thinking and the practice of the people. The emphasis is shifting from enforcement to observance.

PART THREE
GOVERNMENTAL FUNCTIONS

DIVISION IX
PUBLIC RESOURCES AND PUBLIC WORK

PUBLIC LANDS

BY WILLIAM SPRY

COMMISSIONER OF THE GENERAL LAND OFFICE

It is likely that only an occasional person could be found who would admit ignorance of the fact that the expense of running the affairs of this big nation is met by funds derived from taxation, direct or indirect, as everybody either pays taxes or hears others complain about having to pay them. Few recognize that the greatest national asset is the public domain.

General Disposition.—The public lands, in a restricted sense, are those only which are subject to disposal under the various acts of Congress, to which reference will be made; but in order to realize the part they have played in the development of this country, one must know that the early frontier was pushed forward till it was practically obliterated by those of pioneering instinct who sought free homes on the public domain or to wrest wealth from its natural resources. They established the settlements that became towns and towns that developed into cities. Out of the public lands have been created and reserved the great national forests, with an aggregate area of more than 180,000,000 acres, the wonderful national parks covering over 11,000 square miles, and more than 2,500 square miles embraced in national monuments perpetuating natural wonders, comprising a boundless field for recreation and educational research. Other thousands of acres have been devoted to reserves for the protection of birds and game.

In addition to the vast area that has been dedicated to public use and the conservation of natural resources, hundreds of millions of acres have been disposed of at cash sale, the earliest method of disposition, under: the preëmption law, which was the first provision to encourage actual settlement on the public lands; the homestead laws which followed and later superseded the preëmption acts; the timber and stone law for the disposal of lands chiefly valuable for timber or stone; the desert land law for the reclamation of arid lands by individuals; the mining laws; grants to encourage the building of railroads and wagon roads. To the States went the swamp lands within their boundaries and other lands for the support of schools and various public purposes.

The public domain of to-day is made up of over 180,000,000 acres in the United States, and more than 300,000,000 acres in Alaska. The greater part of the vacant lands in the United States is in the States west of the Mississippi River, though small areas subject to disposition are still to be found in the southern States of Florida, Alabama, Mississippi and Louisiana. The most important laws under which these lands may be acquired are: the homestead acts, requiring residence and cultivation; the desert land law, requiring irrigation; and the mining laws.

Public Land Service.—This vast empire is under the direct control of the Commissioner of the General Land Office, at Washington, subject to the supervisory authority of the Secretary of the Interior. The machinery for its protection and disposition is made up of the executive office in the Interior Department, about fifty district offices in the several public land States where entries are actually made; a cadastral engineering service, which surveyed about 6,000,000 acres during the fiscal year ended June 30, 1924. Also a field inspection force with varied duties having in view the prevention of fraud in the acquisition of title to the public lands, protection of the public timber against trespass and fire, and a general enforcement of the laws and regulations governing the acquirement of land titles from the government.

In the early days the public lands were disposed of at cash sale to raise funds for the running expenses of government. From May 20, 1785, to June 30, 1924, receipts from the sale of public lands and Indian lands aggregated more than $555,000,000. In addition to liberal land grants, millions of dollars have been paid the States for educational purposes and public improvements. The important operations of the U. S. Bureau of Reclamation in reclaiming arid lands by the concentration and distribution of water for irrigation are well known to the public; but how many people are aware of the fact that the funds for this work are provided by the General Land Office through its administration of the public land laws? Congress has been called upon to appropriate practically nothing from the general funds of the government since the enactment of the reclamation law in 1902, as that statute imposed the financial burden upon the land department and it has made possible the results attained. During the 22 years of operations under the reclamation act, the General Land Office has provided more than $128,000,000 for the work; during the 5 years since the passage of the mineral leasing act, over $20,000,000 have been added to the reclamation fund from the proceeds of oil and gas leases under that law. Incidentally the States in which these oil and gas lands are located have been enriched to the extent of about $15,000,000 during the same period.

Homestead Lands.—Of all the public land laws, the one of greatest interest, which brings the government into intimate relation with the claimant, is the homestead law. Under the other public land laws personal contact with the land is more or less incidental, but the seeker of a free home must actually reside upon the land for at least seven months each year for a period of three years and cultivate a prescribed portion. It is no undertaking for a weakling, as the lands still available for homesteading are not only mainly remote from railroads and towns, but are valuable for stock-raising purposes rather than cultivation of the ordinary agricultural crops. The Commissioner of the General Land Office is authorized to reduce the cultivation requirements upon proper grounds, and the homesteader is permitted to be absent from the claim for a period of five months each year in order to enable him to earn money for living expenses and improvements. Credit for military service against the term of residence required is given soldiers and sailors of the Civil War, the Spanish War, the Mexican Border Operations, and the World War; and veterans of the last war have a preference right of entry in connection with lands made available to entry by survey or restoration from reservation or withdrawal. A surprising interest in the opportunities afforded by the homestead laws was manifested by returning soldiers of the World War, and many of them have acquired farm homes in that manner. More than five and a half million acres were patented under the homestead laws during the last fiscal year.

The homestead law passed in 1862 is a heritage of the administration of President Lincoln. There were involved in pending entries under its provisions on June 30, 1925, approximately 30,000,000 acres and prior thereto it had contributed 1,378,884 farms for an area of 222,707,947.93 acres. More than a quarter billion acres consecrated to free homes. What a monument to the immortal Lincoln!

Grazing Land.—The conflict between settler and stock man is no longer the grave problem it once was, though isolated cases come to light. Free range on the public domain in large areas is a thing of the past, and what there is must be shared by the stock man with the settler. The former, generally speaking, has come to realize that loss of the free range does not mean destruction of stock-raising on a large scale, or even injury to the industry; certain allowable controls over grazing tracts by means of title or lease make it possible to improve the range by encouraging the growth of native grasses and cultivating forage crops, which means more and better cattle. Comparison of the number of cattle and sheep, and the quality as evidenced by prices received, raised in States with no free range, such as Ohio, Indiana and Illinois, with the same statistics relating to any of the far western States, will furnish convincing evidence that the cattle industry has nothing to fear from the encroachment of private ownership or a definite government control of the public grazing lands.

Legislation is now pending before Congress under which, if enacted, the Secretary of the Interior will be authorized to classify the grazing lands within the public domain and lease them under such regulations and in such bodies as will insure the preservation of the pasturage or forage values, with due protection to the settler and provision for the development of such mineral deposits as may be found.

Mineral Lands.—The government's policy of controlling natural resources within its public lands had its beginning with acts of Congress of 1909 and 1910, providing for the disposition of the surface of coal lands under the agricultural land laws and reserving to the government the coal deposits and the right to mine and remove the same. These acts were preceded by extensive withdrawals of lands known or believed to contain coal. Next came an act of 1914 reserving phosphates, nitrates, oil, gas and asphaltic minerals; and the plan of authorizing exploration for and leasing of reserved mineral deposits was inaugurated by the enactment of the potash law of 1917. The stock-raising homestead law of 1916 reserved all minerals in lands entered thereunder, and the leasing policy became firmly established with the general leasing law of February 25, 1920, having in view the development of lands containing, or believed to contain, deposits of coal, phosphate, sodium, oil, oil shale, or gas. The results effected by this legislation are best illustrated by the fact that under the first five years of its operation, the government has collected in rentals and royalties about $45,000,000, of which $10,000,000 went into the miscellaneous receipts of the government, and the balance was divided between the reclamation fund and the States in which the minerals were produced, as before stated.

Recreation.—In addition to its contribution to the permanent development of all that part of the United States south and west of the territory embraced by the thirteen original colonies by placing settlers thereon, the General Land Office has played its part in the preservation of the beauty spots and natural wonders of the public domain now available for the recreation and education of the people. Many of these have been reserved and developed as a result of information furnished by its field investigating force, and as the first administrator of the forest reserve act, it created an important nucleus for the present vast national forest system.

Outdoors.—In connection with its other activities along the lines herein briefly reviewed, the General Land Office is coöperating with the President's Committee on Outdoor Recreation in furtherance of the plan for developing Federal policies of land use in which recreation will have its proper place. The value of outdoor recreation is too obvious to require supporting comment, yet it has never been reflected in any active governmental participation, other than military preparedness. The President's plan will have not only the educational aspect of attracting the attention of the public to the benefits of outdoor life, aided by the fact of his interest in the matter; it will also result in adding materially to the opportunities for indulging therein. Recreational areas must be provided, and they must have such scenic, scientific, or other interesting attributes as will make them attractive. The plan will no doubt expand so as to bring about the establishment of such areas in all States whether or not they contain public lands. The first steps in its inception have naturally turned to the public domain. The General Land Office has made available the information secured by its surveyors and field inspectors and instructed them to make special effort to obtain and present in concise form data relating to areas suitable for recreational purposes.

Although the undertaking is in preliminary form as yet and legislation must be formulated for the proper control and administration of lands reserved and dedicated to this purpose, some important definite steps have been taken. A number of areas have been withdrawn from disposition under the public land laws and many others are under consideration, each possessing some special feature in harmony with the purpose in view. One tract contains a cave of more than local interest; another has on it prehistoric ruins; others are either on lakes or streams, affording fishing, bathing and boating, or suitable for camping facilities along public highways. The plan should enlist public interest and participation, since indulgence in reasonable recreation takes its place as one of the modern rules of health.

RECLAMATION AND IRRIGATION

By Hugh A. Brown

Bureau of Reclamation, Department of the Interior

DIFFICULTIES

Defects of Irrigation.—Since the close of the World War, conditions affecting irrigation have become quite different from what they were before that date. Irrigation engineering, as such, has been little changed, but the economic value of irrigation works is decidedly different. Engineering works theoretically perfect may be worse than useless because what they accomplish is not worth the cost involved. Such a condition may be remedied by better use of the works in some cases; in other cases, there is no way of meeting the high costs, and failure results.

The outstanding lesson of irrigation in the United States in 1925 is that while a large amount of sound engineering and construction has been done on public irrigation enterprises, it has often not been successful because, in the main, good engineering is no cure for inferior soil, poor farming and ill-advised politics. During the year the newspapers have carried many stories of the sad condition of farmers on some of the irrigation projects of the U. S. Reclamation Service, as told to investigating committees. The same newspapers have paid little attention to the statements of Elwood Mead, Commissioner of Reclamation, on the subject. He is one of the outstanding living specialists on the subject, with a record of successful achievements in this and other countries. In October, 1925, he gave an address before the Western Society of Engineers which is one of the most valuable explanations of the status of irrigation that has been made, for it tells frankly what is the trouble, what have been the causes of the trouble, what steps can be taken to remedy them under the present laws, and what legislation is necessary in order to salvage whatever of good there is in these irrigation projects.

Irrigation farming has all the difficulties of ordinary farming plus others peculiar to itself. An irrigation farmer cannot be so independent as a farmer in Connecticut or Iowa. He must coöperate with his neighbors in irrigating when his turn to take water comes. He must level his fields to take water. He must choose his crops not only with regard to soil, climate and markets, but also with a keen eye on their response to water. He must be a better than average farmer to win success. Many persons who should never have tried to become farmers on irrigated land have done so, particularly on federal projects; and their lack of success caused many protests from them in 1925. For it is usually the case that where money is owed to the United States protests against paying it are more numerous than is the case with debts to other creditors.

Repayment System.—The reclamation act of 1902 established a fund made up of the proceeds from sales of public land, to which a later act added half of the proceeds from mineral leases. This fund has been used to build the irrigation works and into it was to be paid a sum sufficient to recoup the cost of the works from repayments by the users of the water, made in annual installments during twenty years. No interest is charged on the deferred payments, but the operating expenses are assumed to be met promptly and entirely by the users. In short, the settlers really pay 5 per cent. interest on the cost of the works for twenty years, and the government then gives them the works. No other government is so generous to irrigationists. Yet to date, on only one project has even half the construction costs been paid; on some projects none of the construction costs has been paid and a large part of the operating costs is in arrears.

Good Results.—In spite of this unexpected weakness, there are some good things to report. One hundred and forty-three thousand persons are living on the irrigated farms of the Reclamation Service, and 337,000 in the towns on these projects. Some of these persons are doing well and many more are gradually working up to that condition. In Nevada, according to Dr. Mead, the State would be in a critical condition, with a population of only 70,000, without the Newlands-project farms which furnish winter feed for range stock. The irrigation farmers of Texas, Arizona and California are now the main source of long-staple cotton. These and other good things that might be mentioned are the result of good farming, however; and one of the defects of the government's policy on irrigation matters has been its lack of attention to the ability of settlers on its projects to develop into good farmers.

Reclamation Farmers. — Settlers cannot move on to irrigated farms and develop them as did the settlers in the prairie states, where a paying crop could be raised the first year. It often costs as much as $75 to $100 per acre to prepare an irrigated farm to-day for taking water. The cost of the irrigating works adds from $30 to $100 more; Dr. Mead estimates that it will be $158 an acre on the Columbia Basin project in Washington. Operating charges should be paid. Fences are needed to keep out range cattle, and a house for the farmer's family and a shelter for his work team must be built. Dr. Mead estimates that, at present prices, it costs from $5,000 to $7,000 to improve an 80-acre farm on the average irrigation project, before the first crop is raised; and that in some projects several years of careful irrigation are needed to bring the land to its best condition. Farmers who have the necessary amount of money will not go to these projects, as a rule; he believes the best settlers will prove to be those coming with $2,000 to $3,000, provided proper facilities for loaning them money at reasonable rates are made available and they are good farmers at the outset. No land should be taken up by untrained farmers or by speculators unwilling or unable to pay the charges of irrigation. The next session of Congress will have this matter before it.

Although the construction costs of the old projects have been burdensome, those of projects undertaken now will be much more difficult to carry. They cost now two to three times as much as in 1910, when a large part of the projects were built. There is a grave question if the water will be worth what it will cost to supply it on some projects under consideration, particularly in view of the increased price of everything the farmer must buy and the increase in taxation. Much of the land on these new projects is privately owned, sometimes in large tracts, and arrangements must be made for subdividing and selling it at fair prices to qualified settlers. There are other economic and administrative problems to be settled. It is clear that at the present time engineering is of less concern in the irrigation field than problems which relate to farming.

DAM CONSTRUCTION

Pending Projects. — Among the more interesting engineering works completed during the year were the Tieton dam on the Yakima project in Washington, an earth and rock-fill dam, 244 ft. high and 905 ft. long, with a concrete core wall; the Gerber dam, of the arch type, on the Klamath project in California and Oregon, 85 ft. high and 470 ft. long; and the Black Canyon dam, 183 ft. high and 1,040 ft. long, a concrete structure on the Boise project in Idaho. Among the works under construction are the American Falls dam on the Minidoka project in Idaho, having a concrete section 3,100 ft. long and 87 ft. high, and an earth section 1,900 ft. long and 75 ft. high; and the Guernsey dam on the North Platte project in Nebraska and Wyoming, which is an earth and rock-fill structure 97 ft. high and 575 ft. long.

Arch Dams.—The most interesting contemplated work is the construction and testing to eventual destruction of a concrete arch dam on Stevenson Creek in California. Concrete dams of the older types depend for their security on the weight of the masonry, the shape of the cross-section, and the completeness with which the dam and its foundations are bonded together. As the weight is the most important factor, these older dams are often called gravity structures.

About twenty-five years ago, in order to save some of the masonry needed in gravity sections, engineers began to construct thin dams convex upstream in plan so as to develop an arch action in them when water was impounded behind them. They are not true arches because they are held at the bottom by their foundations, but arch action is developed in an ever increasing degree measuring from the base up to the crest.

Test Arch Dam.—Several theories of the stresses in such structures in service have been proposed, and some checks on them have been obtained from measurements of the deflections of such dams as water rose behind them. It is now proposed to build an arch dam 60 ft. high and subject it to a great variety of tests, and then raise it by a succession of 10-ft. steps, repeating the tests at each successive addition to its height. The dam will eventually be raised to a sufficient height to cause failure, if possible. These tests are the most elaborate full-scale engineering investigation ever undertaken.

FEDERAL RECLAMATION AND IRRIGATION

The Bureau of Reclamation.—The Bureau of Reclamation (originally the Reclamation Service) was organized in the Department of the Interior under the Act of June 17, 1902, which provided that receipts from the sale of public lands in the states of Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming should be set aside in a special fund known as the reclamation fund, to be used in the examination and survey for and the construction and maintenance of irrigation works for the storage, diversion, and development of waters for the reclamation of arid and semiarid lands in the States named. Later the provisions of the act were extended to the State of Texas.

Funds Available.—In addition to the funds made available by the above act, other large sums have been added in recent years under the oil leasing act of February 25, 1920, which provides that for past production 70 per cent. and for future production 52½ per cent. of the amounts derived from bonuses, royalties, and rentals should be paid into the reclamation fund. Other large additions to the fund come from the collection of construction charges, operation and maintenance charges, water rentals, and power sales; and smaller accretions from town lot sales, potassium act receipts, and receipts under the Federal water-power act. Funds made available for expenditure to June 30, 1925, are summarized as follows:

Accretions to the reclamation fund:		
Public land sales	$107,165,289.14	
Oil leasing receipts	23,710,420.57	
Town lot sales	586,630.16	
Potassium act receipts	25,186.07	
Receipts under Federal water power act	10,756.05	$131,498,283.99
Special appropriations and bond loan		20,127,190.60
Collections for construction, operation and maintenance, and incidental operations		59,390,700.59
Total		$211,016,175.18

Irrigation Projects.—Twenty-seven projects have been constructed or partially constructed by the Bureau, located in sixteen of the seventeen arid States of the West. No project has yet been constructed in Oklahoma. The Garden City project in Kansas, the Hondo project in New Mexico, and the Buford-Trenton division of the Williston project in North Dakota have been abandoned; and steps are now being taken to sell the remaining division of the Williston project. The table which appears on page 262 lists the present projects, by States, and includes statistics of cost, the acreage for which water was available in 1924, irrigated acreage, cropped acreage, value of crops grown in 1924, and value of crops per acre.

In addition to the area supplied with water in 1924 on the project proper, the bureau also furnished a whole or partial water supply under the Warren Act to more than 1,000,000 acres of land contiguous to the projects.

Construction Results.—During the twenty-three years of its operations, the Bureau of Reclamation has constructed more than 100 storage and diversion dams. The volume of masonry, earth, rock-fill and crib in these dams amounts to 18,342,000 cubic yards. Many of the structures are world famous, such as the Roosevelt dam on the Salt River project in Arizona, a rubble masonry arch, 280 feet high, forming a reservoir with a capacity of 1,635,000 acre-feet; the Elephant Butte dam on the Rio Grande in New Mexico, constructed of rubble concrete, 306 feet high, the capacity of whose reservoir is 2,638,000 acre-feet; and the highest of all, the Arrowrock dam in Idaho, on the Boise River, a rubble concrete arch rising to the height of 349 feet. The total reservoir capacity on June 30, 1925, amounted to 10,325,000 acre-feet of water, or sufficient to cover the State of Massachusetts to a depth of two feet.

The bureau has constructed nearly 16,000 miles of canals, ditches and drains, more than 140,000 canal structures, 10,700 bridges, 12,000 culverts, 106 tunnels aggregating nearly 30 miles in length, and has laid 3,688,816 linear feet of concrete, metal, terra cotta, and wood pipe. More than 1,000 miles of roads, 83 miles of railroad, 3,350 miles of telephone line, and 1,652 miles of transmission line are listed under the head of "communications" constructed by the Bureau. The total amount of earth, indurated material and rock excavated by the bureau to June 30, 1925, reached the enormous total of 245,814,581 cubic yards.

Agricultural Results.—From the time that water was first available for crop production crops to the value of approximately $650,000,000 have been grown on the area included in the projects proper, and an additional large area under private ownership has been served with water from the project works, producing crops valued annually at many millions of dollars. In 1924 the bureau furnished water for the irrigation of 1,805,730 acres on the projects proper, of which 1,290,890 acres were irrigated and 1,216,610 acres cropped, producing crops worth $66,488,560. In addition to this the land under private projects, which was served water under the Warren Act, produced crops valued in that year at $43,237,470.

Character of Crops.—Owing to the extreme variations in climate on the irrigation projects, ranging from the short growing season of the northern tier of States, to the all-year round season of the Southwest, the crops grown on the projects show a corresponding range from those primarily adapted to the temperate zone to those found in a tropical or subtropical climate. On the projects in the State of Washington, apple orchards predominate. In the Southwest, cotton is raised extensively. Between the two extremes a number of the projects grow a large tonnage of sugar beets, a crop which holds a promise of ultimate success to a number of projects struggling with agricultural difficulties.

Crops.—Taking the projects as a whole, alfalfa is the predominating crop, representing in 1924 nearly 38 per cent. of the cropped acreage and 23 per cent. of the value of all crops. Cotton accounted for about 18 per cent. of the total acreage and 34 per cent. of the total value. Cotton and cotton seed together were valued at $22,500,000 in 1924. Only 2 per cent. of the cropped acreage was represented by apple orchards, yet the value of this crop was more than 6 per cent. of the total crop value, amounting to $4,152,000. The accompanying table gives a distribution by large groups of the crops grown on the projects in 1924:

CROP ACREAGE AND VALUE, 1924

Crop	Acreage Cropped	Value	
		Total	Per Acre
Cereals	225,374	$ 5,000,493	$ 22.20
Other grain and seed	26,271	1,018,369	39.00
Hay and forage	690,592	18,101,083	26.21
Vegetables and truck	70,787	8,137,949	115.00
Fruit and nuts	42,445	7,153,205	170.00
Sugar beets	67,123	4,140,818	61.70
Cotton and cotton seed	216,450	22,516,189	84.43
Other miscellaneous	18,260	420,444	23.02
Duplicated land acreage	140,702		
Land acreage cropped	1,216,610	66,488,560	54.65

Economic Conditions on the Projects.—Largely as a result of the deflation measures following the World War, and the resulting conditions brought about by high prices of land, seed, materials and supplies used on the farm, many settlers on the projects found it progressively more difficult to meet their obligations to the government and began to fall behind in their payments. More and more farmers, during the period of the war, when returns for agricultural products were abnormally large, had incurred burdensome indebtedness for the purchase of additional land at inflated prices or for the construction of new buildings. Municipal, county, and State assessments added to the weight of the load per acre which the over-taxed land was called upon to pay. Because of the fact that the Government charge bore no interest, it was the last to be paid. As a result the total of uncollected charges continued to swell.

Another cause of inability of the water users to meet their payments was the fact that on many of the projects land had been included originally which later proved infeasible to cultivate, although bearing the same charges as those assessed against the most fertile land on the project.

Committee of Special Advisers on Reclamation.—In order to determine the agricultural and economic conditions on the projects, with a view to recommending remedial legislation, the Secretary of the Interior appointed a Committee of Special Advisers on Reclamation, comprising Thomas E. Campbell, chairman, former Governor of Arizona; Dr. John A. Widtsoe, secretary, former President of the Utah Agricultural College; James R. Garfield, former Secretary of the Interior; Oscar E. Bradfute, President of the American Farm Bureau Federation; Clyde C. Dawson, a specialist on irrigation law; and Dr. Elwood Mead, widely known reclamation economist and professor of Rural Institutions of the University of California, now Commissioner of the Bureau of Reclamation.

This Committee made an exhaustive investigation of and report on the projects. A number of its recommendations were incorporated in the Act of December 5, 1924. This Act provides for the determination of the feasibility of a project and its adaptability for actual settlement and farm homes before construction is authorized; selection of settlers on the basis of industry, experience, character, and capital; classification of the irrigable lands with respect to their power to support a family and pay water charges; the payment of construction charges on the basis of the productive power of the land, in annual payments of 5 per cent. of the average gross annual return; the taking over of the operation of the projects through a legally organized water users' association or irrigation district; a comprehensive survey to ascertain all pertinent facts where it appears that, on account of lack of fertility of the soil, an inadequate water supply, or any other physical causes, settlers are unable to pay construction costs, or whenever it appears that the cost of any reclamation project has been apportioned or charged upon a smaller area of land than the total area of land under the project. It authorizes an appropriation of $100,000 for investigations to determine how arid and semi-arid, swamp and cut-over timber lands may best be developed. Steps are being taken to put this legislation into effect at the earliest possible date.

Board of Survey and Adjustments.—Under the provision of the above act for a comprehensive survey of the projects, supplemented by an appropriation for the purpose, the Secretary of the Interior appointed a Board of Survey and Adjustments to classify the lands on the projects and to adjust the differences between the water users and the Bureau. Thomas E. Campbell and Dr. John A. Widtsoe were appointed adjustment advisers, and each designated chairman of the board to function as two boards, one for the northern and one for the southern projects. Other members of the board comprised a representative of the State interested, designated by the Governor, and a representative of the Bureau of Reclamation. These boards were assisted by soil experts, representatives of State Agricultural Colleges, and by local coöperative committees on each project. The duties of the board were—

1. In general, to determine conditions on the projects with a view to applying the remedial measures provided in the Act of December 5, 1924, outlined above.
2. In particular, to make the surveys and reports required by the Act.
3. To make recommendations for contracts and agreements that may secure regular payments for construction and for operation and maintenance charges.
4. To help promote good feeling among the water users.

The final reports of the board, coordinating the various recommendations, will be submitted to Congress for suitable action.

Assessed and Uncollected Charges.—During the past five years, 1920-1924, there has been a progressive falling off in payments due the Government from irrigators on about one third of the Federal reclamation projects. Delinquencies from all projects for this period amount to a total of $8,685,000. For the last year of the period it has increased more than $3,000,000. Some projects have

COST, ACREAGE, AND CROP PRODUCTION ON IRRIGATION PROJECTS OF BUREAU OF RECLAMATION, 1924

State and Project	Construction Cost to June 30, 1925 *	Irrigable Acreage, 1924 †	Irrigated Acreage, 1924	Cropped Acreage, 1924	Value of Crops, 1924	
					Total	Per Acre
Arizona: Salt River	$ 10,548,119	$ 236,000	$ 233,500	$ 215,430	$22,091,850	$102.55
Arizona-California: Yuma	9,064,798	70,500	53,180	53,120	4,504,090	84.80
California: Orland	1,114,411	20,660	11,970	9,970	224,950	22.57
Colorado: Grand Valley	4,687,018	30,000	13,460	12,600	587,430	46.60
Uncompahgre	6,709,961	95,200	62,180	62,100	1,941,600	31.26
Idaho: Boise	14,130,422	144,200	113,630	111,050	2,708,740	24.40
King Hill	1,878,871	16,890	6,240	6,070	224,630	37.04
Minidoka	5,331,224	......	......	......	......	......
Gravity division	......	72,610	55,800	50,340	1,446,280	28.73
Pumping division	......	48,960	43,400	40,720	1,186,910	29.15
Montana: Huntley	1,480,739	32,540	19,600	19,770	827,520	41.86
Milk River	7,041,221	64,800	14,600	14,530	177,360	12.21
Sun River	4,480,734	57,160	......	......	......	......
Fort Shaw division	......	......	7,890	8,140	111,460	13.69
Greenfields division	......	......	13,740	22,450	290,230	12.93
Montana-North Dakota: Lower Yellowstone	3,120,190	58,000	14,030	14,030	548,400	39.10
Nebraska-Wyoming: North Platte	16,815,568	202,980	......	......	......	......
Interstate division	......	......	85,850	80,910	2,343,110	28.96
Fort Laramie division	......	......	39,060	39,060	991,720	25.38
Northport division	......	......	9,170	9,170	176,820	19.28
Nevada: Newlands	7,330,606	72,625	44,280	40,760	1,405,120	34.47
New Mexico: Carlsbad	1,401,011	25,045	24,460	23,070	2,239,900	97.10
New Mexico-Texas: Rio Grande	13,489,966	142,000	116,000	103,120	9,624,570	93.34
North Dakota: Williston	489,945	7,650	1,180	1,180	60,450	51.23
Oregon: Umatilla	4,249,729	24,470	13,130	12,510	334,860	26.76
Oregon-California: Klamath	4,932,099	42,590	......	......	......	......
Main division	......	......	36,000	31,520	762,890	24.20
Tule Lake division	......	......	2,400	1,190	29,680	25.00
South Dakota: Belle Fourche	3,547,570	81,870	48,400	49,810	597,090	11.98
Utah: Strawberry Valley	3,458,435	53,890	43,320	41,040	1,519,160	37.01
Washington: Okanogan	1,407,906	7,500	4,940	3,950	699,600	177.11
Yakima	14,041,848	......	......	......	......	......
Sunnyside division	......	102,350	95,000	78,130	4,923,820	63.02
Tieton division	......	32,000	27,970	24,550	3,194,820	130.16
Wyoming: Riverton ‡	2,266,437	......	......	......	......	......
Shoshone	9,164,685	63,240	......	......	......	......
Garland division	......	......	29,760	29,600	617,230	20.86
Frannie division	......	......	6,750	6,720	96,270	14.41
Total	$152,183,513	$1,805,730	$1,290,890	$1,216,610	$66,488,560	$ 54.65

* Including operation and maintenance during construction.

† Acreage for which water was available

‡ Under construction

paid all their assessments; others have paid practically nothing.

These delinquencies fall into two groups. The first includes those where irrigators are unable to pay from causes beyond their control, such as poor soil or inadequate water supply. The second is due to conditions which can be controlled. On some projects large areas of fertile land are either unfarmed at all or very poorly farmed, and on prosperous projects there are irrigators amply able to pay but lacking the will.

Relief Acts.—A number of acts have been passed by Congress providing for temporary relief to the settlers by deferring payments on the charges assessed. The most important of these is the Phipps Act of May 9, 1924, which carried over to 1926, 1927, and 1928 the debts of those who were delinquent. Deferred payments under this act amount to $4,837,000.

Measures to Improve the Financial Situation.—The result of these acts, providing blanket moratoriums for those applying for relief, but not providing for a refund to equally deserving settlers who had paid their charges, was a lowered morale and an increase in the number seeking deferments. In order to check this drift into insolvency, insistence is being made upon the payment of current operation and maintenance charges in advance. Water users have also been advised that hereafter no blanket deferments will be granted to those in arrears, but that relief, where granted, would be to individuals, and only on a showing by the individual that he is unable to meet the payments because of conditions beyond his control.

Closely linked with this problem is that of the selection of settlers on the basis of adequate capital and experience, and their financial aid and direction during the time the raw land is being changed into a producing farm. It is immaterial whether this financial aid is furnished by the Federal Government, the State in which the project is located, or by private finance corporations, provided that it is readily available at a low interest rate to deserving settlers and is amortized over a suitable period of years. Much thought has been given to this problem, and bills have been introduced in Congress to provide such aid.

Bureau of Indian Affairs.—The bureau has constructed works for the irrigation of about 1,369,000 acres of land on Indian reservations, of which approximately 355,000 acres were irrigated in 1924 on 84 projects.

FEDERAL GEOLOGICAL SURVEYS

By George Otis Smith

Director, U. S. Geological Survey

Services to the Public.—Forty-six years have passed since the United States Geological Survey was created by Congress, and besides meeting the demands of those years, this field organization with headquarters in Washington has gradually become a great storehouse of information on the mineral resources of the United States. Through its systematic study of the mineral wealth, the water resources, and—of late years especially—the lands of the public domain, the Geological Survey is able to-day to supply on immediate call authoritative information to the general public as well as to other Federal bureaus. Its aim has been to furnish the basic facts, and the careful topographic, geologic and hydrographic surveys by this scientific service have contributed in no small degree to the success of our national parks, national forests, and great highway systems, as well as the Government irrigation works and drainage projects, the Government coal and oil and water-power reserves, and the general advance of the mining industry.

Demand for Geologists.—The work of the Geological Survey is necessarily foundation work, and in after years, when the various superstructures have been reared upon it, the earlier preparatory work is generally lost to view; consequently a great many people have never even heard of the United States Geological Survey. Nevertheless the geologist may now be said to be coming into his own. With the exhaustion of many of the more easily developed mineral deposits, coupled with the constantly increasing commercial demand for them, the task of finding reserves to keep our industries going becomes harder and harder year by year. The commercial world realizes this but dimly if at all; but the technical staffs of the mineral industry well know it as a fact. In line with this need there has come about the "discovery" of the geologist during recent years by many branches of the mineral industry; and the result has been to accentuate the economic applications of geology and greatly to increase the number of geologists professionally engaged in directly applying their science to oil discoveries and to mining. Besides the acceptance of the value of the economic geologist there is a growing recognition of the value of fundamental research work, that may throw light on the laws that control the occurrence of useful minerals. The scientific staff of the Geological Survey, within the limitations of men and means provided, tries to meet the economic needs of the country and at the same time conduct as much research as possible for the general advancement of science. However, it is always to be remembered that research into the realms of "pure science" of to-day may bring forth results that to-morrow may be definitely applied to economic development. So, in this sense all the work of the Geological Survey is economic.

Branches of Service.—For purposes of administration the Geological Survey is divided into five scientific branches—the Topographic branch, which is making a topographic survey of the entire country; the Geologic branch, which is studying and mapping the mineral deposits of the country; the Water Resources branch, which is determining the water resources of the country, above and below ground; the Conservation branch, which is classifying, valuing and aiding in administering the great public domain; and the Alaskan branch, which is carrying on practically all of these activities in Alaska.

Geological Survey Maps.—A topographic map is a relief map that not only shows with remarkable accuracy the shape and altitude of land and water features by means of contour lines, but also the works of man such as railroads, highways, buildings, etc., in their direct relation to one another and to the natural features of an area. They are basic maps, and are in fact used as bases for engineering projects of every kind, from the smallest to the largest. The Geological Survey has thus far mapped about 40 per cent. of the area of the United States, and the results are published in nearly 3,400 different topographic maps. Last year more than 18,000 square miles were thus topographically mapped. An interesting phase of this work is the growing use of the airplane in even this very accurate kind of map-making. In Texas alone 3,721 square miles were topographically mapped and every mile of it with the aid of aerial photography, thus increasing the output by fully 25 per cent. In topographic mapping throughout the country twenty-nine states, counties, municipalities, and Hawaii coöperated with the Federal Survey, contributing toward the work over $400,000.

Field Work.—In geologic work the Survey's activities are also countrywide and the kinds of deposits examined and studied by field geologists, both in the Eastern States and on the public lands of the West, would constitute a long list of useful minerals. As already intimated fields of inquiry that used to be regarded as purely scientific are now recognized as intensely practical. The Survey staff of paleontologists is constantly occupied in identifying fossil collections not only to determine the succession of rock layers but to aid the commercial geologists of the mineral industry, especially the oil industry, in finding out what rocks they are dealing with in their development work. Fossils were once defined by the late Director John W. Powell as the "time-clock" of the geologist, by which he could tell the age of the rocks; they may also be described as the geologist's compass.

Water.—Water is our most abundant and most essential mineral and the Geological Survey is the authorized agency for collecting and publishing data relating to water, whether they pertain to water-power, water for irrigation, or water for industrial and municipal use. The Geological Survey last year coöperated with thirty States and Hawaii as well as many other government agencies that deal with water resources, and to carry on its stream measurements it occupied 1,715 river gauging stations throughout the country.

Classification of Public Lands.—In its work of classifying the public lands the Geological Survey, drawing on its vast fund of accumulated information, has in comparatively recent years classified over 31,000,000 acres of coal land, 71,000 acres of oil land, over 4,000,000 acres of oil shale land and nearly 300,000 acres of phosphate land. The engineers of the Survey now have technical supervision of the oil and gas, coal, phosphate and other leases on the public domain. This work has also resulted in the reservation of more than 5,000,000 acres as water-power reserves whose use will be required for the development of about 15,000,000 continuous horse-power; also in the designation of public lands available for entry under the enlarged homestead law of nearly 325,000,000 acres, and under the stock-raising homestead law of another 116,000,000 acres.

Work in Alaska.—Perhaps nowhere has the Geological Survey made a more clear-cut record than in Alaska. Year after year the great Territory has yielded up its mysteries to Survey explorers who have tramped and canoed and dog-sledded across its vast stretches, and climbed and explored its high mountain areas. The result has been that the mineral resources throughout the Territory are to-day fairly well known and the Geological Survey's maps and reports have been put into the hands of thousands of prospectors and miners. During last year Geological Survey men continued the exploration of Naval Petroleum Reserve No. 4, the topographic engineers and geologists filling in the largest blank space on the map and at the same time determining the degree of probability that here in far northern, arctic Alaska, may be found petroleum which will be available to meet naval and other needs.

Engraving and Printing.—Even a brief account of the work of the United States Geological Survey should have a reference to its own large engraving and printing plant where, last year, nearly three-fourths of a million of its own maps were engraved and printed, besides several million maps, charts and publications printed for other governmental establishments.

STATE GEOLOGICAL SURVEYS

By M. M. Leighton
Chief of Illinois Geological Survey

Recognizing their mineral wealth and the aid which modern geology is able to render in an intelligent exploration, recovery and conservation of this wealth, most states maintain geological surveys. During 1925, somewhat more than one million dollars was appropriated for their service, and this was further increased by perhaps $300,000 or more by coöperating federal agencies, counties, and local organizations and industries. Some surveys, however, were embarrassed either by diminished appropriations or temporary denials. All who possessed funds have apparently given a good accounting and in most respects are serving the needs of the present complex civilization for geological information and authoritative base maps. About 100 full-time technically trained men, and 160 part-time technically trained, participated in this scientific effort; aided by a clerical staff of some 90 people. The following results were obtained:

FUNDAMENTAL STUDIES

Although most large mineral industries now employ their own geologists or mining engineers for local detailed work, they need basic information on stratigraphy, paleontology, structural geology, physiography and historical geology.

Arizona has prepared an elaborate and beautifully illustrated book summarizing the geology of Arizona, also a report on the geology and mineral resources of the Payson district, and has nearly completed reports on the Courtland-Gleeson Mining District and the Jerome quadrangle, the latter in coöperation with the United Verde Copper Company.—California has completed a report on the geology and deposits of the Randsburg quadrangle.—Georgia carried on work in structural geology and the physiography of the state.

Idaho made a study of the Rocky Bar quadrangle, in Elinore County, and a stratigraphic reconnaissance of Clarke, Butte, Custer and Lemhi counties. Illinois continued its systematic study of the Silurian, Pennsylvanian and Pleistocene formations, its microscopic study of the Chester series, and detailed studies and mapping of the Alexis, Monmouth, Beardstown, Liberty, and Harrisburg quadrangles. Iowa continued its work on the Silurian, Pennsylvanian, and Pleistocene. Kentucky completed the areal mapping of the major divisions of the Mississippian, and Devonian, for the new State geological map. In addition the structural geology of Greenup, Carter, Lawrence, Morgan and Knox Counties was completed, a geological map was prepared for Morgan County, the stratigraphy and structure of the Western Coal Basin and of the Eastern Kentucky Coal Field were completed, and also a detailed report and map of Edmonson County. In Maryland most of the areal work is now in the nature of revision. The present year's work has resulted in unraveling much of the complex structure and stratigraphy of the Piedmont area. — Mississippi has prepared a bulletin on the stratigraphy and mineral resources of the State.—Ohio devoted the year to the faunal studies of the Monroe limestone and began a study of the Monongahela formation.—Oklahoma investigated the areal geology and economic resources of three counties, and prepared a subsurface map of northeastern Oklahoma.—Pennsylvania completed the areal geology of one quadrangle and made substantial progress on several others.—South Dakota carried on some special stratigraphic studies and undertook a detailed study of some local structures and a general study of the larger structural features of the state.—In Tennessee the geology of the Nashville Basin was completed and the Tertiary formations of West Tennessee were studied. Some stratigraphical, paleontological and petrographical work was done in Vermont.—Virginia began work on the Lower Cambrian.—West Virginia completed Pendleton, Mercer, Monroe and Summers Counties.—Wisconsin had the coöperation of the U. S. Geological Survey in some stratigraphic studies of the Lower Paleozoic formations.—Wyoming projected a reconnaissance in the Atlantic South Pass Gold Mining District and the geological mapping of Medicine Bow Range.

STUDIES BY MINERALS

Oil and Gas.—Illinois is undertaking a study of the chemical composition of the oil field waters of the State, and has completed the field work on the oil and gas possibilities of the Sparta and Ava areas.—Kentucky has prepared new oil and gas maps for Fulton, Trigg, Grayson, Hart, Barren, Clinton, Wayne, Taylor, Oldham, Mason, and Fleming, and for the northern part of Menifee and northeastern part of Ohio counties.—New Mexico appropriated about $7,000 for the supervision of the oil industry of the State, and appointed an oil geologist to function under the State Commissioner of Public Lands. The University will publish a report on oil conditions in the State.—Ohio continued a study of the oil and gas conditions in Clinton County.—Oklahoma carried on investigations in oil and gas.—Tennessee made a study of the Bone Camp and Glenmary oil fields in Scott and Morgan counties.—Wyoming pursued field work on the oil and gas possibilities of Platte, Laramie, and Goshen counties, and made an inspection of most of the structures and oil and gas fields in the State.

Coal.—Illinois completed a report on the Coal Stripping Possibilities of Illinois, and of the Coal Resources of District III (western Illinois).—Kentucky completed the field work for a report on the geology and coals of the Middlesboro syncline between Pineville and Cumberland Mountain in southeastern Kentucky, and continued its study of the western Kentucky coal field.—Ohio made a limited collection of samples of coal and analyses.—Pennsylvania carried on special studies in the conservation of coal, particularly the small sizes of anthracite.

Ore Deposits.—Iron ore was studied in Georgia, North Carolina, and Wisconsin, Wisconsin carrying on detailed and magnetic surveys in twelve townships of Douglas County. Lead and zinc received attention in Oklahoma. The gold deposits in Tennessee were studied.—Arizona completed the investigations of its mercury resources, in coöperation with the U. S. Bureau of Mines.—Idaho made a survey of the mineral resources of Boundary County.—Kentucky undertook a statewide study of its vein ores.—Pennsylvania is writing reports on its metallic deposits.—Wyoming made an inspection of various mines and prospects and other occurrences of metallic and nonmetallic minerals.

Structural Materials.—Cement materials were studied in Arizona and Kentucky. Clays were investigated in Pennsylvania and South Carolina. Building stone was studied in Arizona, Oklahoma, southeastern Pennsylvania, and South Carolina. A survey of road making materials, either hard rock or sand and gravel, or both, was made in Idaho, South Dakota, and Wisconsin.

Water Resources.—Kentucky continued its coöperation with the U. S. Geological Survey in a study of its water resources and stream flow.—New Jersey carried on quantitative studies of underground waters and continued gauging of streams.—North Carolina maintained fifty-six stream gauging stations, made one hundred twenty measurements of low water flow, carried on coöperative investigations on Flat River, supervised the making of the dam for Lake Waccamaw, studied the stream flow polution of Moccasin Creek, made evaporation studies in Chapel Hill and a complete survey of New River, and revised its publication on the power situation in North Carolina.—Pennsylvania made a reconnaissance study of its water resources.—South Dakota attempted to arouse the well owners of the State to the necessity for the conservation of artesian water.—Tennessee carried on coöperative work in stream gauging, increasing the number of gauging stations from 43 to 54.—The Virginia legislature has provided for a Commission on Water Power and Development, which is authorized to make a thorough study of the water power, industrial, and agricultural resources of the State. A map of Virginia has been issued, showing the power stations, transmission lines, and installed or proposed gauging stations.

Soils.—Studies of soils were carried on by the Geological Surveys of Mississippi, New Jersey, Tennessee, West Virginia, and Wisconsin.

Miscellaneous Investigations.—California completed its report on magnesite, Idaho studied its thermal and mineral springs, Kentucky its molding sands, North Carolina its deposits of pyrophyllite, Tennessee its phosphate deposits, Wisconsin its molding sands, and valuations of mines for the Tax Commission.

TOPOGRAPHIC MAPPING

Twenty states coöperated with the U. S. Geological Survey in topographic mapping, and completed for the fiscal year ended, June 30, 1925, a total of 14,207 square miles of sketching, 6,766 miles of primary levels, 4,354 miles of primary traverse, 1,705 permanent bench marks, 1,096 permanent primary traverse marks, and 109 triangulation stations were completed and 85 marked. Of the total area mapped, only 529 square miles were revised or re-surveyed. In West Virginia, the culture of fifteen quadrangles was revised.

Changes in Personnel.—To succeed the late Doctor Thomas L. Watson, Mr. Wilbur A. Nelson was elected State Geologist of Virginia, and Mr. Hugh D. Miser was appointed State Geologist of Tennessee to succeed Mr. Nelson.

SELECT REFERENCES

Note specially—Alabama: *Statistics of the Mineral Production for 1923.*—Arizona: complete reconnaissance geologic map of the State and topographic map showing 100-meter contours, both on the scale of 1/500,000.—California: bulletin on magnesite and one on the geology of the Randsburg quadrangle.—Florida: *16th Annual Report,* 1923-1924.—Georgia: bulletins on their iron ores and the physical geography of the State.

Idaho: bulletins on platinum occurrences near Cœur d'Alene; geological reconnaissance of the mineral and Cuddy Mountain districts; Mica deposits of Latah County; and *Ground Water for Irrigation on Camas Prairie* (Camas and Elmore counties).

Illinois: Four bulletins dealing with the coal resources of Illinois; molding sand report; *Limestone Resources; Carbon Ratios and Petroleum Possibilities;* two *Reports of Investigations* dealing with the Allendale oil field and other areas deserving testing for oil.—Kansas: The Geology of Russell County; a subsurface correlation of the Stratigraphic Units from Russell to Marion County; Fossils from wells in Central Kansas.—Kentucky: State relief map, new base map, *Geography of the Kentucky Knobs, Oil Shales; Mineralogy; Geography of the Western Coal Field;* and miscellaneous papers.—Missouri: *Biennial Report.*—New York: *The Susquehanna River in New York* and *Evolution of Western New York Drainage; Utica and Lorraine Formations; Geology of the Gouverneur Quadrangle; 20th Report of Director; Geology of the Ausable Quadrangle; Some Silurian (Ontarion) faunas.*—North Carolina: *Kaolines of North Carolina; Deposits of Brown Iron Ores in Western North Carolina; Water Power Investigations of Deep River; Water Power Situation;* stream flow; water power map; map of developed water power in southeastern states; Magnetic Declination.—North Dakota: Lignite deposits.—Ohio: Industrial water supplies; *Geology of Columbiana County.*—Oklahoma: *Geology of Love County, Simeron County,* and *Index to the Stratigraphy of Oklahoma.*

Pennsylvania: *Soil Survey of Adams County; Mineral Resources of Adams County and Coal Analyses.*—South Dakota: *Oil Possibilities of Western Ziebach County;* Sand and gravel deposits in Yankton County; *Structures in Northern Haakon County; Oil and Gas Possibilities in Northeastern Meade County,* and *The Ragged Butte Structure.*—Tennessee: *Water Resources and Data of Tennessee;* Henry County traverse map; map of Franklin Quadrangle showing phosphate deposits; *Coal Report.*

Virginia: *Physiography of the Upper James River Basin; Geology and Coal Resources of the Valley Coal Fields; Geology and Coal Resources of the Coal-bearing Portion of Lee County;* and map of Virginia showing stations and transmission lines.—West Virginia: *Geologic Report on Mineral and Grant Counties,* with topographic and geologic maps of the same; soil surveys for Mercer, Monroe and Summers counties.—Wisconsin: *Mineral Land Classification; Lake Temperatures and Soil Survey of Several Counties.*—Wyoming: Reprint of Oil structures map.

PUBLIC BUILDINGS

By James A. Wetmore
Acting Supervising Architect, Treasury Department

General.—The functions of the office comprise construction of federal buildings throughout the country and maintenance and operation of nearly all of such buildings after completion. The output of the office includes Post Offices, Courthouses, Customhouses, Appraisers' Stores, Mints, Assay Offices, Barge Offices, Sanitariums, Marine Hospitals and Quarantine Stations, and with comparatively few exceptions the furnishing, equipping, repair, maintenance and operation of such buildings devolve upon the office of the Supervising Architect.

There are now approximately 1,300 such buildings and the maintenance and operation of these, exclusive of the repairs, consumed during 1925 slightly over $8,700,000. Expenditure for this purpose increases annually in proportion to the new buildings placed in operation; the normal increase is 100 buildings per year but during 1925, as well as some previous years, the increase has been less than one-third of the normal increase for the following reasons:

Building Projects.—At the time the United States entered into the World War practically all new construction work was suspended and at the close of the war the cost of materials and labor had advanced to such a figure that it was found impossible to award contracts within the funds available, except in a few isolated cases.

It should be noted that Congress fixes for each building a limit of cost and no project is started that cannot be completed within that limit. The principal contract for the building usually includes approach work consisting of sidewalks, curbing, driveway and trucking space for post office trucks. For minor items, such as exterior lamp standards, interior lighting fixtures, lock box equipment, vault shelving, painting of plastered walls and ceilings, and similar work, reservations are made at the time of awarding the principal contract and these items are contracted for later.

At the close of the war there were left some 130 projects on the books of the office and for several years attempts were made to secure increases in limits of cost for the various projects but without success.

Relief Methods.—In the meantime working space, especially in the Post Office Buildings in the larger cities, had become exceedingly congested and in order to relieve this condition to some extent, a general appropriation of $220,000 was obtained in 1920 for the purpose of providing additional space by such means as small extensions, construction of mezzanines, and rearrangement of basements to make existing space suitable for postal operations. The cost of any one project was limited to $20,000 but the expenditure seldom approached that figure; the average was between $6,000 and $7,000. This method of relieving congestion proved so successful, additional space being provided at from $5.00 to $6.00 per sq. ft., that the appropriations for the following years were gradually increased, reaching in the present year $800,000, expended mostly for extensions ranging in size from 400 to 2,500 sq. ft., at an average cost of $10,000.

Resumption of Construction.—With the view of resuming construction work on some of the 130 authorized buildings in smaller communities extensive studies were made for the purpose of producing designs that could be carried out within the limit of cost. With the coöperation of the Post Office Department and other Departments concerned, some reductions in requirements were made so that this office felt justified in making an attempt to get construction work started again. The result was that between twenty and thirty buildings were contracted for per year; and 1925 is about on a par with previous years. A subsequent tabulation includes the approximate obligation for buildings contracted for during 1925 as well as expenditures for buildings completed during 1925, and for buildings under construction for which the contracts were let during the previous year. The bulk of the buildings are Post Office buildings, costing generally less than $100,000 each. While these buildings are very plain, usually faced with brick, they are well proportioned and have sufficient architectural distinction to stamp them as Federal Buildings. They have generally proved satisfactory to the communities in which they have been erected.

Hospital Buildings.—In addition to the output of buildings of this character much effort has been devoted during the last few years to hospital construction for war veterans, for which some $24,000,000 has been expended, and during 1925 out of the small balances remaining from the various hospitals, a recreation building has been constructed at the Veterans' Hospital, Castle Point, N. Y., at a cost of $80,000, and drawings have been prepared for a similar building at the hospital at Tuskegee, Ala., for colored veterans. Working drawings and specifications have also been prepared for a hospital building at Sawtelle, California, involving approximately $1,300,000; for the Federal Industrial Institution for Women at Alderson, W. Va., comprising some twenty-two buildings and involving approximately $2,000,000; and for a Quarantine Station at Mobile, Ala., involving $300,000.

The appropriation for the hospital at Sawtelle was made to the Board of Governors for the National Home for Disabled Volunteer Soldiers, headquarters Dayton, Ohio, and the appropriation for the Industrial Institution for Women at Alderson, W. Va., was made to the Department of Justice, but taking advantage of the organization and experience of the Office of the Supervising Architect the architectural and engineering work was entrusted to that office.

Transactions.—The office work for 1925 included also the usual reports and estimates to Congress on proposed building legislation, involving correspondence with other Departments regarding requirements and in quite a number of cases field surveys to ascertain the best method of meeting the requirements either by extensions to present buildings or by new buildings, and cost of sites. Several hundred such reports are made annually.

Contracts let for construction of buildings during calendar year 1925: 23 buildings aggregating	$ 1,220,000
Buildings completed during calendar year 1925: 27 buildings and 2 extensions aggregating	2,050,000
Buildings awarded prior to 1925 and still in course of construction: 8 buildings aggregating	550,000
Appropriation for "Remodeling and Enlarging Public Buildings"	600,000
Treasury Department Act, approved Jan. 22, 1925, 22 items	539,000
Annual appropriation for "Repairs to Public Buildings"...	1,480,000
Annual appropriation for "Repairs to Mechanical Equipment"	503,700
Annual appropriation for "Furniture and repairs to same"..	745,000
Annual appropriation for "Safes, Vaults and Lock Boxes"......	195,000
Designs, working drawings and specifications for a number of large special projects, aggregating	4,300,000
Annual appropriations for "Operating Force" and "Supplies"..	8,719,606
Appropriations, obligations and disbursements	$20,902,306

WATERWAYS AND HARBORS

By Harry Taylor

Major-General, U. S. A., Chief of Engineers, War Department

Note.—With the exception of a few privately owned and state owned canals, the harbors and inland waterways of the United States are improved for navigation through the agency of the Corps of Engineers, U. S. Army. For a brief statement of the organization and magnitude of its work, see *Defense and Armament—The Army.*

INLAND WATERWAYS

Location and Description.—The principal systems are the Great Lakes, together with the New York State Barge Canal and the Hudson River; the Mississippi system, including the Missouri, the Ohio and the important tributaries of the latter; the rivers of the Atlantic Coast and the intracoastal waterways connecting them; the rivers of the Gulf Coast, and the intracoastal waterway system running from Mobile via New Orleans down the Texas coast, and connecting with the numerous southern Louisiana waterways and with the Mississippi system; the San Joaquin-Sacramento system in California; the Columbia system in the northwest; and the minor Pacific coast rivers. These are improved over stretches and to depths commensurate with their commercial importance and with the benefits which are derived from them. The Great Lakes, which are really inland seas, have connecting channels from Superior to Erie at least 21 feet deep at standard low water, and corresponding depths are provided at the most important harbors. The Hudson and the New York State Barge Canal, and the intracoast system from Trenton, N. J., to Beaufort, N. C., have 12 feet. The Mississippi has 9 feet to Cairo, and project depths of 8 feet to St. Louis and 6 feet to St. Paul; the Ohio a 9-foot project, with 6 to 9 feet on its main tributaries; the Missouri a 6-foot project to Kansas City; the San Joaquin has a 9-foot and the Sacramento a 7-foot channel. Various other rivers and waterways range from 7 feet or more to 3 or 4 feet, and those of small importance often have no specified project depth, and are improved simply by the removal of snags and obstructions.

The above figures give the *project* depths toward which the War Department is working. They have not yet been attained in all cases, due to limitation in time and funds. Among the important sections not yet to project depth are the Mississippi from Cairo to St. Louis, and from St. Louis to St. Paul; the lower Missouri; and the lower Ohio. Work on these is being pushed as rapidly as possible.

Commercial and Economic Importance.—For full details see *Inland Waterway and Coastwise Commerce.* The corrected total of inland waterway commerce for 1924 was 173,200,000 tons valued at $3,446,035,000. Rough estimates indicate that the direct benefits to the public, in the single item of reduced transportation charges on freight actually moving by water, and disregarding all ulterior benefits, are sufficient to pay about every two years for the entire sum spent since the beginning of our history in providing the improvements.

Status of Water Transportation.—Inland waterway transportation, after a widespread decline which began about the end of the civil war, has in the past ten or fifteen years shown a pronounced increase. The two most important factors are probably, first, the realization that, under suitable conditions as to character of material, location or origin and destination with respect to waterways, suitable channels, and modern carriers and terminals, water transportation is inherently cheaper than any other form, and that to ignore this means a gigantic economic waste. Second, the growing realization that the three chief means of internal traffic, viz.: railways, waterways and highways, are properly not competitive but coöperative, and that the full development of any one of them is not only of great benefit to the public at large, but also benefits instead of injuring the other two. This is self-evident from the fact that, where waterway transportation is most intensively developed, as on the Great Lakes, the Hudson, the upper Ohio and California systems, rail transportation is also highly developed and in a flourishing condition.

The full measure of waterway recovery is not apparent from current statistics of total tonnage, since even in the worst days of the waterways scores of millions of tons moved on them. The tendency in the past was, however, toward movements almost wholly of low grade bulk material, on short hauls, between all-water points, with the exceptions in a few special cases, such as the Great Lakes. The notable tendency at present is toward the movement of higher grade traffic, over long stretches, involving in many cases rail hauls at one or both ends, and thus requiring cooperation of the railroads in the establishment of equitable joint rates. There is also a distinct tendency toward providing modern and efficient carriers, terminals and transshipment facilities.

Mississippi.—In no section of the country is this more evident than in the Mississippi Valley. The Mississippi up to St. Louis is now served by the Inland Waterways Corporation, which is touched on below. During the year there has developed strong agitation for the establishment of adequate carriers on the upper Mississippi. On the Ohio system there has long been intensive traffic on the upper section, such as the coal movements on the Monongahela, Allegheny and Kanawha and the Ohio itself. With the approaching completion of the river improvement, whereby it will be tied to the main Mississippi with a year-round 9-foot channel, the great steel companies of the upper valley are spending large sums for new floating plant, and have already begun to ship their products down the river. There is also activity in the direction of establishing additional efficient common carrier service. Such instances could be multiplied on numerous important waterways throughout the country.

The attitude of farseeing public men on the importance of our national waterways system, the need of completing it and of intensively developing its traffic, and the proper cooperative relation between railways and waterways, is well illustrated by the speeches of Secretary of Commerce Hoover, at Kansas City, on October 19, 1925, and of Secretary of War Davis, at St. Louis, on November 23, 1925, which have been extensively quoted throughout the country.

Inland Waterways Corporation.—This was created June 3, 1924, by an act of Congress. It represents a reorganization of the Federal Barge Line created during the war, and in its present form is a corporation functioning like any other, but controlled by the Government through the Secretary of War. The present chairman and executive officer is Brigadier General T. Q. Ashburn. It operates a fleet of modern barges and towboats on the Mississippi River from New Orleans to St. Louis, on the Warrior in Alabama, and over the intermediate sheltered intracoastal waterways. It handles freight of all kinds—low, medium and high grade. Operation of the barge line since the close of the war has not until recently resulted in a material direct return on the investment. The reasons are many, but essential equipment was lacking and joint rates with connecting railroads were not existent. Conditions are constantly improving, particularly in the rate situation. During the seven months ending July 31, 1925, the corporation handled 763,620 tons of commerce, and during the same period earned approximately 4 per cent. on its investment over and above operating expenses and depreciation charges. In addition to this showing, the net results to the people of the United States up to the present are the salvaging of a potential war loss of some seven million dollars and an annual saving in freight rates of more than a million dollars.

New Waterway Projects.—By the act of March 3, 1925, Congress adopted eleven projects for inland waterway improvement, besides six for Great Lakes harbors. This includes both new projects and the extension of existing ones. The most important of the inland waterway projects is the 9-foot intracoastal canal from the Mississippi to Galveston Bay, at a cost not to exceed $9,000,000. This serves to tie the various waterways of this section to the Mississippi system with an adequate channel, and when completed will permit direct movement between the great industrial and oil producing areas of eastern Texas and the Mississippi and Ohio Valleys.

During the fiscal year 1925 the Corps of Engineers completed and submitted to Congress twenty-six reports on proposed new projects for inland waterways. Of these, nine reports were favorable for improvement, and seventeen were unfavorable.

The following major proposals for new or extended inland waterway developments are now up for study, recommendations thereon not having been formulated:

Deepening and canalization of the St. Lawrence River and the connecting Lake channels, so as to give a through route for ocean vessels from the Atlantic to the Great Lakes. Under technical investigation by an international board of six engineers, of which the three American members are officers of the Corps of Engineers.

A ship canal across New York from the Hudson to the Lakes, with a similar intention of opening the latter to ocean traffic. Under investigation by a board of five Engineer officers.

A barge canal between the Ohio River and Lake Erie.

A barge or ship canal across New Jersey from the Delaware River to New York harbor.

Extension of the federally improved Atlantic intracoastal system from Beaufort, N. C., to Cape Fear River, and from Jacksonville, Fla., to Miami.

A modification of the present uncompleted project for the Mississippi between Cairo and St. Louis, to provide a 9-foot channel; together with several hundred other studies of varying importance.

PORTS

List of Ports.—A port channel is distinguished from an inland waterway in being used primarily by vessels operating on the open sea. Many channels are used for both purposes, and it is not always possible to draw an exact line between the two classes.

The agencies and procedure for improvement of port channels are the same as those described above under "Inland Waterways."

The principal ports of commercial importance at the present moment are given below, arranged geographically:

New York, the major port of the nation, handling nearly 25 per cent. of our foreign commerce, and especially notable as the principal port for the foreign and coastwise movement of high-grade package freight.

Other major northeastern ports: Portland, Me., Boston, Philadelphia and Baltimore.

Secondary northeastern ports, notably Providence and the other southern New England ports, whose principal commerce is inbound coal and petroleum products, and coastwise miscellaneous traffic with New York.

Norfolk and Newport News, primarily coal shipping points, both to foreign destinations and coastwise to New England and other northern ports.

Major South Atlantic ports: Wilmington, N. C., Charleston, S. C., Savannah and Jacksonville, with a growing general commerce in some cases, but specializing on bulk commodities. To these should perhaps be added Miami, a coastwise port whose channel is not fully deepened, but which has made tremendous progress with the growth of the Florida peninsula.

Major Gulf ports: New Orleans, with a very large general commerce; Houston, Galveston and Texas City, with a large commerce in grain, petroleum products, cotton and other commodities; the Sabine ports, primarily oil shippers; and Mobile.

Other South Atlantic and Gulf ports: These include Fernandina, Tampa and South Boca Grande, fertilizer shippers; Freeport, Texas, sulphur shippers; Key West, primarily a carferry port; the not yet complete port of Corpus Christi; Brunswick, Pensacola, Pascagoula, Gulfport, and others.

The major Pacific ports: Los Angeles, San Francisco, Portland, Oregon, Seattle and Tacoma. Los Angeles has developed a tremendous commerce, and in 1923 was, in tonnage, the second salt water port of the country; most of its tonnage was, however, local outbound oil and inbound lumber. The others are ports of general commerce.

The secondary ports of the Pacific, including San Diego, several California oil ports, and the lumber ports of the northwest.

The ports of the Great Lakes are not listed here, being really a part of an inland waterway system.

Of the major ports mentioned above, a few have channels with improved depths as great as 40 feet. These are for special traffic, such as the largest Atlantic and Pacific liners and the largest oil tankers. In general, the standard depth which is being provided and maintained for ports of general commerce is 30 feet at mean low water. This is ample in nearly all cases. Statistics show that of all vessels passing through the Panama Canal in 1920 about 99 per cent. drew not over 30 feet, and the same general rule applies for the shipping of the world. Small ports handling a coastwise business only are being maintained at depths of from 18 to 25 feet, and the numerous fishing ports, or ports on sheltered waters, such as Chesapeake Bay, often have channels of 12 feet or less.

New Port Projects.—Including new projects and extensions of existing projects, there were adopted by the river and harbor act of March 3, 1925, twenty-nine new projects for improvement at ports. The most important new port provided for is the 27-foot channel to Albany, N. Y. During the fiscal year 1925, seven reports on proposed port projects were submitted by the War Department to Congress. Of these four were favorable for improvement and three were unfavorable.

Port Facilities.—The period following the World War has been one of great activity in port organization and port development. The Army supply bases built at Boston, Newark, Philadelphia, Norfolk, Charleston and New Orleans have been leased for commercial shipping. The dry docking and repair facilities provided for the Emergency Fleet have also proved of great value to merchant vessels, particularly on the Atlantic and Gulf coasts, where some ports were previously without such facilities. In general our ports now have adequate facilities except for a few of the very largest Atlantic passenger liners, which can only be docked at the U. S. Naval dry dock at South Boston.

Active construction of piers and wharves has been in progress in most of the established ports; other ports have organized, and are contemplating improvements; and some localities not now ocean ports are establishing facilities for such business.

The Port of New York Authority, formed jointly by the states of New York and New Jersey, has been carrying on extensive investigation with a view to coördination of the rail and water facilities of the Port of New York, and has already accomplished the unification of one of the proposed belt lines in New Jersey. The City of New York has added twelve piers, built at Staten Island, and has improved many others. Port Newark has increased the facilities of New York Harbor by the development of ocean terminals, and further extension will be provided when a project at Jamaica Bay, now in an incipient state, has been completed.

Commodious piers have been added to the well equipped waterfront of Philadelphia. The facilities at Norfolk have been increased by the construction of coal loading piers of great capacity and high efficiency, of other wharves, and of a large grain elevator. Wilmington, Del., has completed a modern terminal capable of docking several ships at one time. Notable waterfront activity is shown at Mobile, Ala., where an extensive program of terminal construction is under way. Miami, Fla., has also found necessary a considerable expansion of its facilities. Houston, Texas, once an inland city, has in recent years developed on an artificial ship channel an extensive port, handling a large tonnage of oil, cotton and miscellaneous freight. On the Pacific Coast there has been a considerable expansion of facilities, notably at Los Angeles, where the commerce has increased more than ten fold in five years. San Francisco, Portland, Oregon, and Seattle have also found it necessary to provide large additions for their waterborne traffic.

Somewhat less extensive, but nevertheless important additions to waterfront facilities have been provided at Portland, Me., where a state pier has been built, at Boston, Baltimore, Charleston, S. C., Jacksonville and Tampa, Fla., San Diego and Richmond, Calif., and Tacoma, Wash.

Plans have been, or are being, made, or work is in progress, for new developments at Savannah, Ga., Corpus Christi, Tex., Oakland, Calif., and Lake Charles, La.

Mediums for the interchange of ideas covering port development are furnished through the American Association of Port Authorities, the Pacific Coast Association of Port Authorities and the magazine "World Ports."

DIVISION X

PUBLIC SERVICES AND UTILITIES

PUBLIC SERVICE COMMISSIONS

By John Bauer
City Law Department, New York

Creation. — Active regulation of public utilities is a development of the past twenty years. It began with the passage of the New York Public Service Commissions Law in 1906, and then extended rapidly throughout the country so that to-day it exists in practically every state of the Union.

In most of the states regulation is carried out through the instrumentality of a commission known either as Public Service Commission, Public Utilities Commission, Railroad Commission, or under a similar title. In a few states regulation is carried on without a central commission; each municipality is vested with authority to fix utility rates within its own boundaries, under the general limitations of the state public-utility act.

The utilities subject to regulation are industries upon which community life is chiefly dependent, and for that reason are deemed to be vested with a public interest. They include railways, or bus lines, electric light and power, gas, water, telephones and railroads. To a large extent their service is confined to municipal territory; but in most instances the same company operates in several municipalities. Regulation, therefore, is primarily a state and not a local function. Some utilities, however, operate in more than one state and involve interstate regulation. This applies especially to railroads, and their regulation has been reserved to the Interstate Commerce Commission, except in such matters as are plainly of a local or an intrastate character.

Rates.—Regulation has included the making of rates, the supervision of service and operation, the prescribing of accounts, the control of capitalization and intercorporate relations. Its general purpose is to safeguard the recognized public interest in the utilities, which distinguishes them from ordinary business. The efforts of regulation have, however, centered principally around rate control. Unfortunately the period since active regulation has become established, has been characterized by rapid price changes, affecting not only the investment in utilities but also the operating expenses and taxes. From 1905 to 1913 there was a slow upward movement of prices. Then came the war which was attended by a series of rapid rises, reaching the peak in 1920. Then there was a sharp fall, and a considerable fluctuation since. At the present time average prices are about 60 per cent. above the 1913 level and about 86 per cent. above 1905 when regulation was started.

Because of these rapid changes no existing rate could continue long before it became unsatisfactory either to the company or the public. With the changing conditions, adjustments in rates were necessary, and with every attempted adjustment the divergent public and private interests came into conflict. The earlier part of the period was characterized by efforts to adjust rates to the newer standards that had been established through the statutes, while the latter period has been subject to litigation in the companies' attempt to raise rates to the higher price level.

Throughout the twenty-year period the commissions have not had definite standards by which to fix reasonable rates. So far as the bulk of operating expenses and taxes are concerned, the problem has been fairly simple; practically the actual costs as reflected in the books of the companies have been taken as a basis for rates.

Return on Capital.—As for return on the investment, or compensation to those who furnished the capital, the problem has been difficult and has caused expensive and often bitter litigation.

The general rule is that the companies or the investors are entitled to a fair return on the "fair value" of the property used for the public service. But the difficulty with which the commissions have struggled is the proper measure and practical determination of such "fair value." Under conditions of fairly level or unchanging prices it could be assumed that "fair value" is equivalent to net prudent investment in the properties, which would be shown by the accounts if properly kept under commission jurisdiction. But such a standard, that "fair value" is determined by investment, was never definitely established. Consequently, with the rapid rise in prices since 1913, the companies have naturally sought a return upon the much higher range of reproduction cost; while the public representatives have urged the actual investment basis.

This controversy is not settled yet, and is the cause of growing dissatisfaction with commission regulation. After a twenty-year period we are still struggling without a definite standard on which to fix rates; every case involves dispute as to both principles and facts and accentuates the conflict between the public and the companies.

Appraisals.—To those who have had an active part in regulation it is clear that rate making cannot be effectively realized without a definite basis which rests upon clear principles and exact facts. In order to put rate regulation upon a workable basis an appraisal of the properties is necessary, so that the valuation of all existing facilities shall be determined once and for all, without subsequent readjustment on account of changing prices or other conditions. This amount would then be taken upon the books of the company concerned, and thereafter only actual additional investment added. If this were done, the entire basis of return would rest upon exact facts subject to accounting control. The machinery of rate regulation would become an accounting matter, so that the commission could determine at any time without elaborate hearings whether particular rates are excessive or inadequate. The rights of the consumers as well as of the investors would be exactly defined, and the facts to administer such rights in a practical way would be automatically determined.

The struggle over rates has consumed so much of the Commission's time and forces that little has been done in the more important function of regulation; in promoting better service; and in directing improvements in facilities and methods of operation. It is in this field where the commissions, if they were relieved of the unwieldy rate methods, could exercise the greatest public service.

Administration Status of Commissions.—Among the developments in recent years which have grown out of the extensive rate litigation, is the rather glaring contradiction of the commissions' duties and responsibilities. In our form of government three distinct departments are recognized: the legislative, administrative, and judicial. Each has its particular scope. The first determines matters of public policy and prescribes measures for the public welfare. The second is responsible for carrying out and administering the legislative mandates. The judicial body decides between the particular interests that may be affected in the administration and in the application of the laws.

The commissions combine all three functions. As for rate making, this represents in the first instance the exercise of legislative power; it is *per se* a legislative act. But the commissions are concerned also in administering their own orders, and particularly in passing judicially upon the effect of such orders. In making rates they not only act as legislative agents in the public interest, but simultaneously sit in judgment on the legal rights of the companies and the investors.

Such a double responsibility was never contemplated in our government, and is difficult to maintain. Faced with such clashing functions, commissions are always tempted not to do anything unless prodded either by the companies or by public bodies that have no judicial responsibility.

Municipalities as Litigants.—Out of this conflict has come the widespread feeling that the municipalities should have the right to appear in all regulatory matters so as to present directly the public interest. In all the cases before the commissions the companies are represented by their own counsel to urge their sides of any matter under consideration. But there has not been such a general recognition of the municipalities to represent the public side. The commissions' double function appears to be unavoidable, but to meet the situation the municipalities are seeking a recognized status to represent the *public* side, as counsel of the companies are privileged to urge the *investors'* part of any utility matter.

Personnel.—Another subject that has received extensive consideration is the personnel of the commissions. There has been a growing conviction that the commissions have been subject to too much political influence, and that appointments should be removed entirely from the pale of politics. Only persons with suitable qualifications and experience should be appointed to commissionerships, with a period of service not affected by changing political control. The same standards should apply to all technical departments. The engineers, lawyers, accountants, statisticians, etc., should be appointed and promoted only because of their professional fitness. Moreover, salaries should be paid throughout so as to retain a trained personnel and to offer a stimulus to professional zeal in behalf of the public.

The now widely prevalent system of political dependence, lack of tenure, and inadequate salaries has frequently had a demoralizing effect upon the regulatory bodies. Even some commissioners themselves during their terms of office have had their eyes not primarily upon their duties under the statutes, but upon what they would do after they leave office. Many have found comfortable posts with the companies which they had been previously regulating. Likewise, technical men have found inadequate professional opportunities with the commissions and could obtain reasonable personal advancement only from corporate connections. Hence often engineers, accountants, lawyers, and others, while performing their duties for the commissions, have had their attention upon a possible later connection with the companies. Naturally in such a state of mind they could hardly perform their duties as contemplated by the statutes, or as desired under proper professional standards.

The Future.—These difficulties have developed under rapidly changing conditions and during the comparatively short time that the idea of regulation has spread throughout the country. When important new principles or policies are widely adopted during a short period of years, grave problems are inevitably encountered. Time is required for more precise and equitable methods and procedure. The difficulties of utility regulation are clearly realized by large numbers, and steps are being taken in different parts of the country to remove them. But the function itself is firmly established and is unlikely to be abandoned. Utility commissions promise to be of increasing importance and service in our governmental machinery.

MUNICIPAL OWNERSHIP

By H. M. Olmsted
Consulting Engineer and Accountant, New York

DEVELOPMENTS

The year 1925 has not been marked by great changes in the field of municipal ownership nor by a clear preponderance of indications, one way or the other, that the municipal ownership idea has gained or lost strength during the year.

Electric Developments.—The most active sector in the field has been the electric light and power industry. The general development of this public utility has continued to be rapid, and the question of public ownership has received much attention. The increasing concentration of the industry into a few very large systems, and the extension of physical interconnection which has accompanied the financial consolidations, have tended to emphasize the disadvantage in cost of production to which a small generating plant, whether privately or publicly owned, is subject as compared with an interconnected power system drawing from large plants that can produce power at low cost. The past year has seen the shutting down of a number of small municipally owned generating plants as the communities served by them have either become part of a privately owned electric power system or have purchased power from a nearby private company or municipality for distribution under municipal operation.

Transfer from Public to Private.—Cities reported in various journals to have sold their electric plants to private companies during the year include Oxford, Ohio; Brown City, Mich.; Dane and Lime Ridge, Wis.; Thebes and Vandalia, Ill.; Castana, Little Rock, Ricketts and Schleswig, Iowa; Clinton and LaBelle, Mo.; Kiowa and Okehmah, Okla.; Ballinger, Texas; Clovis, N. M.; Mayfield, Ky.; Fayetteville, Tenn.; Blackshear and Meigs, Ga.; and Madison, Fla. The most, if not all, of these are now to be served by intercity systems. Certain other cities are reported as taking service via transmission line from some other locality, but not selling: Monticello, Ark., leased its municipal plant; Mt. Sterling, Ohio, and Pierson, Iowa, evidently abandoned theirs, Reading, Mass., although deciding to purchase power, held its municipal plant in reserve.

New Municipal Projects. — Cities where municipal ownership projects are reported include Colorado Springs, Colo., which had acquired the private company's electric property and on July 1 entered upon operation of the system, which will comprise two small hydroelectric generating stations and a larger steam plant which the city is constructing. Later in the year, through action of the City Council, the city acquired the gas holdings of the company, assuming operation on October 1. The purchase was financed by income warrants. Loveland, Colo., acquired certain property of the private company in that city by condemnation for use in connection with the plant being built by the city. Muscatine, Iowa, completed a municipal plant at a cost of some $425,000, the city formerly having been served by a private company obtaining current from a plant at Davenport. Chippewa Falls, Wis., voted decisively for the acquisition of a dam site and the local company's distribution system, but a plan for Chippewa County to undertake the development as a county-wide project was blocked by the adverse action of the state senate on a bill to permit counties to acquire water-power and electric plants. Hart, Mich., was enabled to proceed with a municipal hydroelectric enterprise by the dissolving of an injunction against the bond issue for that purpose. Stratford, Iowa, heretofore supplied by a private company, voted bonds to obtain service from the municipal plant at Webster City, by building a transmission line. Owatonna, Minn., completed its municipal plant and reached an agreement with the private company for the city to take over the power and lighting business within the city limits. Bloomfield, Neb., and Conetoe, N. C., are reported as constructing municipal plants, and Brookville, Pa., Rockwood, Pa., and Westfield, Neb., as taking steps to acquire the private plants. Aberdeen, Wash., and Eugene, Ore., are referred to later in connection with water supply.

Pacific Coast Developments.—The Moccasin power plant of the city of San Francisco, with a rating of 80,000 kva., a part of the Hetch-Hetchy municipal water and power project, was placed in operation in the middle of 1925, under a temporary arrangement for the distribution of the current in San Francisco by the Pacific Gas & Electric Co., which already supplies the city. In the election on November 3, the winning candidates were pledged to a municipal distribution system. In Los Angeles a large amount of work was done during the year in betterments and extensions to the distribution system, the construction of new substations and the unification of the municipal system as augmented by the property of one of the competing companies previously acquired. Plans for a stand-by steam station were also instituted in the latter part of the year. The program for the year was planned to involve $9,750,000; a bond issue of sixteen millions had been voted prior to 1925. On April 9 the California Legislative Assembly defeated a proposed constitutional amendment providing for the taxing of publicly owned utilities in the same manner as privately owned ones.

Seattle continued with its new Skagit River hydroelectric development, which began rendering service in 1924. The Puget Sound Power & Light Co. succeeded during the current year in preventing the Seattle municipal system from selling power outside the city limits.

EXTENSIONS AND TRANSFERS

Extensions.—The municipal electric plant at Cleveland, Ohio, serving part of the city, was the subject of critical discussion and investigation during the year. A bond issue of a half-million dollars for extending it was approved at the polls on Nov. 3. Other cities where extensive additions or improvements were reported during the year included Hamilton, Ohio, where the City Council authorized $527,000 of a bond issue previously voted, for the construction of a new plant; Grand Island, Neb., where $750,000 was voted by the Council for the municipal electric, water and ice plants, and Dunkirk, N. Y., which was preparing to issue $200,000 of bonds for a new electric plant. The municipal plant at Fort Wayne, Ind., added an automatic hydroelectric station at the Maumee River dam. Both the municipal and the private plants in that city filed reductions in lighting rates to five cents per kilowatt-hour.

Transfers prevented.—Among cities where decisions were made to retain the status quo as to municipal ownership of electric establishments, Beatrice, Neb., Lone Wolf, Okla., Opelika, Ala., and Whiting, Iowa, voted to continue municipal ownership; Culpeper, Va., Faribault, Minn., and Prairie du Chien, Sparta and Superior, Wis., voted not to adopt it. In Boston Mayor Curley vetoed, in November, a resolution of the City Council to establish a municipal lighting plant, largely on account of the tremendous expenditure involved; he recommended that relief in rates should continue to be sought through the medium of the State Department of Public Utilities.

SUMMARY OF OPERATIONS

Information covering changes in the entire field during the current year is practically impossible to obtain. During the year, however, the Bureau of the Census issued its 1922 census report of the electric industry, a similar report being issued every five years. This showed that the number of municipal electric light and power establishments in 1922 was 2,581, or 40.6 per cent. of the total number of establishments; and that both the number and the percentage had been continually increasing. The percentage of output had not shown this continual increase. In 1922 the output of municipal plants, including those purchasing power as well as those generating it, was 4.9 per cent. of the total for all establishments; in 1917 it was 4.0 per cent; in 1912, 4.6 per cent.; in 1907, 4.9 per cent. (in which year purchased power was not reported), and in 1902, 7.8 per cent (in which year no division between generated and purchased power was shown). The kilowatt-hour output of private plants increased 60 per cent. from 1917 to 1922; that of the municipal plants increased 98 per cent. Publicly owned plants were shown as having 6.3 per cent. of the total capacity of generating stations—a decrease from the percentages of previous years. Of the 2,581 municipal establishments, 1,739 generated all or part of their power, the remaining 842 purchasing all power. The numerical gain in number of municipal plants for the five-year period (1917-1922) was 263, while the number of private plants decreased 449. The average capacity of municipal generating plants increased 52 per cent. per plant during the period; the average capacity of private plants increased 95 per cent., the average private generating plant having 9.8 times the capacity of the average municipal plant, in 1922.

The McGraw Central Station Directory, an annual publication, does not contain a summary by ownership, but was stated by the National Electric Light Association to show 2,125 municipal plants in the year 1924. A count of the McGraw directory for 1923, covering data for 1922, by the writer, shows 2,048 municipally owned electric systems, which indicates an increase in the number of municipal plants between 1922 and 1924. With regard to the list of stations in 1924, the National Electric Light Association, in its book "Political Ownership," states, "There are 45 cities over 10,000 population served exclusively by municipal plants making and distributing all electricity used in the community. There are 13 additional cities which distribute all electricity but which purchase their power from outside companies. There are 82 other cities with municipal systems in more or less active competition with companies. There are 625 cities of over 10,000 population served by companies."

The Ontario Hydroelectric System.—A mixture of municipal and provincial ownership—continued to be a bone of contention in the discussion of public ownership in the United States. Early in the year, under the auspices of the Smithsonian Institution, a report by S. S. Wyer was published entitled "Niagara Falls: Its Power Possibilities and Preservation," which consisted largely of an attack upon the Ontario system. This was given wide publicity and in turn brought out much comment adverse to the report, including a spirited refutation by Sir Adam Beck, Chairman of the Hydro-Electric Power Commission of Ontario from its beginning until his death on August 15, 1925. Premier Howard Ferguson also came out in opposition to the Wyer report.

WATER SUPPLY

In this orthodox field for municipal ownership of utilities, the year marked the union of nine of the cities on the east side of San Francisco Bay, including Oakland, Alameda and Berkeley, to form a utility district for the purpose of securing an adequate water supply, the present service being from a private company. A $39,000,000 bond issue was voted to obtain water from a reservoir to be constructed at Lancha Plana, 87 miles away. Another outstanding event was the passing of San Antonio, Texas, from private to public ownership, this being one of the few large cities in which the water supply system had continued to be privately owned. The purchase price was $6,500,000, financed by water revenue serial 5½ per cent. bonds running from one to forty years, arranged through an intermediary group of bankers. Local criticism was directed against the financial arrangement as involving too high a purchase price and rate of interest.

A special election was held in April at which the bond issue carried by a large majority. Yakima, Wash., on Oct. 15, voted 20 to 1 to construct a municipal water system. In some cities the question of water supply was combined with that of hydroelectric power. Los Angeles, for example, on June 2, voted six to one in favor of a bond issue of $2,000,000 to be used in connection with the project of an additional water supply from the Colorado River; this was believed to be a step toward the obtaining of electric power from the same source, for the municipalities of southern California, as contemplated by the proposed Boulder Canyon development. Aberdeen, Wash., had received a set-back in its struggle to institute a hydroelectric development on the Wynooche River through a court decision that it was not legal to combine water supply and electric power in one proposition, as had been done in connection with the $2,000,000 bond issue voted in December, 1924. Accordingly the issue was divided, and on March 24, 1925, bonds in the amount of $700,000 were voted for the water supply project. The "Electrical World" reported on June 20 that the private company in Aberdeen had reduced its rates about 20 per cent. to induce the city to abandon its hydroelectric plans; on Sept. 12 that the State Supervisor of Hydraulics had granted the city an extension to Sept. 1, 1926, to begin the water-power project, work having been begun on the municipal water works; and on October 3 that the Federal Power Commission had denied applications from both the city and the company for rights on the Wynooche River. Eugene, Ore., applied to the State Engineer for appropriation of water from the McKenzie River for municipal water-supply and power development.

MUNICIPAL STREET RAILWAYS

Chicago.—In street railways municipal ownership interest centered about certain of the large cities. On April 7, the voters of Chicago, by a decisive majority at a referendum election, rejected a proposal for ultimate municipal ownership and operation of the entire local transportation system. The existing surface lines were to be purchased for $163,000,000 and the elevated lines for $85,000,000, through the sale of Municipal Railway Certificates, the principal and interest of which were payable out of earnings. Subways and other extensions were to be similarly financed, the total expenditures for purchase and new construction over a twenty-year future period being estimated at between $600,000,000 and $700,000,000. A sufficient rate of fare was to be established to pay for the cost of service together with interest and amortization as to the certificates. A Municipal Railway Board was to be established to control the unified system; it was to consist of three members appointed by the Mayor, with Council approval, three by a committee representing the owners of certificates, and three by agreement between the Mayor and the committee. The proposal had the endorsement of the Mayor and the Council majority, many civic organizations, several newspapers, and some of the most prominent and conservative bankers of the city, but was strenuously opposed by many municipal ownership proponents, including the Hearst newspapers, the Chicago Federation of Labor, and certain prominent councilmen and civic leaders, who charged that the purchase prices were excessive and that the plan failed to provide a sufficient measure of public control.

Detroit Situation. — In Detroit, which has the largest unified municipal street railway system in the country, the situation was marked by the discharge of the street railway manager, who had been closely identified in various capacities with the municipal enterprise since its start, and also of the auditor, by the incoming mayor, about the middle of the year. The new auditor shortly issued a statement, which obtained considerable publicity in trade journals and newspapers, to the effect that the system's reserves were not fully represented by liquid assets; that the reserve for claims was inadequate as set up; that a five-million-dollar bond issue voted in 1923 had been largely exhausted in advance; and that a deficit of more than three millions existed.

A hearing was held concerning the charges, in refutation of which statements have been made that the reserves had been handled in accordance with approved practice in the industry, and that three and one-half millions of bonds could still be sold under the bond issue to retire short-term loans. The new auditor's report for October 31, 1925, shows an operating balance for the preceding twelve months, after taxes, interest and amortization, of over half a million dollars, and, on the balance sheet, a surplus of $133,344.29.

Other Propositions.—A commission of the Massachusetts legislature has been studying public ownership as a means of financing the needs of the Boston transportation system, now privately owned but operated by public trustees.

In Los Angeles a committee of engineers representing the state, the city and the two companies reported in favor of consolidation of street railway service under municipal ownership.

In San Francisco, on November 3, the initiative to purchase the Market Street Railway, competing with the municipal lines, for $36,000,000 was defeated eight to one.

In New York City the overwhelming election of James J. Walker, the Democratic candidate for Mayor, on November 3, was generally taken to mean the continuation of that city's public ownership policy, particularly in rapid transit.

In Michigan a law was passed requiring municipally owned utilities to adopt uniform accounting and annual reports which would be similar to those for private companies, under the direction of the Public Utilities Commission.

In the other public utility fields besides those mentioned above municipal ownership activity was very slight during the year.

PARKS

BY HENRY V. HUBBARD

PROFESSOR OF LANDSCAPE ARCHITECTURE, HARVARD UNIVERSITY

Organization of Park Betterment.—In 1925, as in 1924, the most important contribution towards the development of parks in this country is the work of the National Conference on Outdoor Recreation (established by invitation of President Coolidge in 1924), through its numerous active committees, representing the various organizations and professional bodies concerned in public recreation.

Among the studies which are in progress are surveys of municipal and county park systems, recreational surveys of state and of federal lands, coördination of federal land policies in relation to recreation, and a survey of the recreational value of highways.

There has also been progress in clarifying the conception of the respective functions of the national park in which scenic values primarily are preserved, of the national forest with its secondary function of offering recreational opportunities in suitable areas, and of the state park as preserving characteristic local scenery and offering an accessible place for city dwellers who wish really to get out in the open country.

It is hoped also that the studies of the National Conference on Outdoor Recreation will differentiate in the public mind the function of *parks*, for the enjoyment of landscape, and of *playgrounds*, for the conduct of sports and games.

State Action.—An outstanding feature of the year is the strong movement behind the slogan "A State Park Every Hundred Miles," backed by the National Conference on State Parks which held its fifth annual meeting in the Spring of 1925 at Skyland, Virginia.

With the aim of supplementing the recreation opportunities of the national parks, and to offer large near-by play spaces to citizens of states in which no lands of national-park rank exist, many states are initiating state park programs of far-reaching importance. In the east New York State has been especially notable, following up the successful Palisades Inter-State Park with coöperation in a park system plan for the Niagara region centering about Buffalo and including Erie and Niagara counties.

In 1925 the mid-west states have been particularly active in improving park and forest areas. Indiana is adding a new park in the northeast corner; Illinois is creating a new conservation commission with funds to acquire forest and recreation areas; Ohio through the State forester is securing scenic areas in the southwestern section; Michigan is still adding, largely by gift, to its total of 53 areas, the largest number of any state, and Minnesota's system is also recently increased by gifts; Wisconsin has made additions, and is creating a northern forest park of nearly a hundred thousand acres; Iowa has added to her fine river-gorge and lake parks.

The movement for parks is also active in the southern states, following the lead of Texas, which has 51 gift parks. In North Carolina, Tennessee, and West Virginia the legislature has created a state agency to promote and develop parks. Many other states have studies in progress looking to the enactment of legislation for parks or for coördinating existing areas. In Massachusetts, a committee on open spaces has recently been formed to point out future needs in a region famous for its early contribution to the idea of organized park systems.

National Action.—The most striking national park project before the public is for the Appalachian National Parks in the Shenandoah and Great Smoky Mountain areas. An act of Congress (Feb., 1925) authorizes the Secretary of the Interior to determine boundaries with a view to acquisition. Other bills and resolutions relating to parks, forests, and national monuments have become laws in 1925, and these are listed in the valuable pamphlet *Organization and Program*, July, 1925, of the National Conference on Outdoor Recreation, where are also described the park survey studies already mentioned.

A record of park progress for the year should include a reference to the valuable information contained in the bi-monthly magazine *Parks and Recreation*, the official organ of the American Institute of Park Executives, now published in greatly enlarged form. In its pages current news of national, state, county, and municipal parks may be followed. The activities of the Playground and Recreation Association of America in directing the survey of municipal and county parks are important, as well as its extensive playground improvement program [for an account of playground progress, see the article Recreation].

Cities and Parks.—Among the cities where especial achievement in park-making is reported, Chicago is important, with its South Park waterfront developments; and in the New York region, Westchester County (N. Y.) and Union County (N. J.) have made notable recent progress in supplementing the already overworked park areas accessible to the metropolitan center. St. Louis with its Forest Park and Denver with its Mountain Park may be mentioned for the striking successes of their parks in the community life, which are repeated in other forms in many cities throughout the country. The development of adequate outer parks for our National Capital is a matter of concern to the whole country. Now that a National Capital Park Commission has been authorized by Congress, and the Committee of One Hundred on Plan of Washington (led by the American Civic Association) is strongly behind a program of park acquisition, real progress is expected in the coming year.

STREET TRAFFIC

By Ernest P. Goodrich,
Consulting Engineer, New York

INCREASE IN TRAFFIC

The present incidence was very largely upon improving traffic conditions and its best regulation to secure greater speed and safety and to reduce congestion.[1]

Animals.—While during the past few years the horse has hardly held its own in numbers on farms and in cities, the rapid increase in the use of automobiles has created a traffic condition for which modern communities were not designed.

The Bureau of the Census gives the following figures as to the number of horses, mules, and burros on farms and not on farms:

Year	*On Farms*	*Not on Farms*	*New York City*
1900	...	3,126,636	130,695
1910	6,605,746	3,469,662	129,370
1920	6,997,289	2,098,846	57,751

Automobiles.—The automobile registration in the United States has grown as follows:

Year	*Passenger Cars*	*Trucks*	*Total*
1920	8,225,859	1,006,082	9,231,941
1921	9,346,195	1,118,520	10,464,715
1922	10,864,128	1,375,725	12,239,853
1923	13,479,608	1,612,569	15,092,177
1924	15,460,649	2,131,332	17,591,981
1925	17,200,000 (est.)	2,300,000 (est.)	19,500,000 (est.)

While traffic tallies show that street traffic has not increased in the same proportion as has the registration, it is still evident that it is the accelerated increase in the use of motor vehicles which has created the traffic problem.

TRAFFIC REGULATION

City Ordinances.—During 1925 no new ideas were incorporated in traffic regulations enacted during the year. Many cities revised their ordinances (e.g., Cincinnati, Ohio, Providence, Rhode Island), making them more detailed and rigid and providing for their more exacting enforcement. To the latter end special traffic courts were created (e.g., Washington, D. C.), and existing ones were enlarged (e.g., New York City). The amended ordinances have usually included the pedestrian along with the vehicle driven within the scope of their regulations.

Investigations.—The year 1925 stands out as a year of study and experimentation. In December, 1924, Secretary Hoover of the Department of Commerce called a National Conference on Street and Highway Safety. The results of its work were so marked that its committee was continued to report to a second conference planned to be held early in 1926. Advance information of the report of the committee on costs of congestion is to the effect that annual losses which aggregate $2,000,000,000, or $20 per capita, due to street traffic congestion, can be saved by careful study, planning, and administration. With these facts and conditions generally known to engineers and traffic officials throughout the country, many lines of investigation have been followed, many plans prepared, and much work has been done in the way of actual accomplishment.

Traffic Commissions.—Special official traffic commissions have been created in a number of cities (e.g., Washington, Los Angeles, Pittsburgh,

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[1] The estimates for 1925 were made by the writer.

Detroit), with technically trained men in charge or as staff. These commissions have generally commenced their work by making a detailed traffic survey upon which scientific basis their conclusions might be based. Other cities (e.g., Buffalo, Philadelphia) have appointed expert consultants who are making studies, and in many instances initiating changes in methods and in details of traffic regulation. Many other cities have been and are being studied with great detail by official and unofficial groups such as City Plan Commissions, Mayor's Citizen Committees, Chambers of Commerce, etc. (e.g., Dayton, Cincinnati, Providence, Albany, Chicago). State Highway Commissions have aided the solution of the urban problem by studying the best methods of detouring through traffic around congested centers. For example, Missouri and Ohio are suggesting more or less complete detours, while Wisconsin works alternative routes through and around the dense traffic areas. Springfield, Mass., was one of the first cities to mark detours plainly.

THOROUGHFARES

Streets.—The city of St. Paul, Minn., has started a careful study of the details of street construction looking to the securing of greater safety for vehicles, by the enlargement of corner radii at street intersections and at the entrances to private grounds, for example. Other organizations are studying such problems as reduced curvature, improved grades, wider roadways on hills and on curves, cross-section profiles, better traction surfaces, the reduction in pavement cutting for pipes, and other improvements which will make it possible to expedite traffic movement.

TRAFFIC SIGNALS AND MARKERS

Signals.—The year has shown a considerable development of ingenuity in the creation of mechanical devices to assist in the control of street traffic. Flashing lights and steady rays of different colors, mirrors, direction waving, and information signs of many diverse characters have been patented, placed on the market and more or less widely advertised. Several cities of some size have also installed considerable numbers of mechanically controlled synchronized signals (e.g., Cleveland, Syracuse, New York City) and others have contracted for them (e.g., Washington) or are carefully studying the propriety of doing so (e.g., Albany, Chicago). The Chamber of Commerce of Cleveland sent a committee of city officials and others to study traffic control methods in a number of cities and reported strongly in favor (for reasons of economics and efficiency) of the installation of a comprehensive system of traffic control of this type.

In Chicago an improvement upon the synchronized scheme is being designed very similar to the installation in Los Angeles in that the signals are so "coördinated" as to make possible a continuous plan of traffic on all streets,—the vehicles traveling in groups at a predetermined speed, the groups being so spaced and related that those on intersecting streets move between the gaps of those on any given thoroughfare. So far as known this scheme was first publicly suggested at the National City Planning Conference in Cleveland in 1916, but aside from its partial application in Los Angeles, the proposed Chicago installation will be the first comprehensive application of a principle which should be a great improvement on the "stop-and-go" method employed elsewhere.

Routes and Stops.—Among numerous minor devices which have grown considerably in favor during the past twelve months the following may be mentioned,—the painting of pavement surfaces with lines to indicate pedestrian crossing points, isles of safety, and lanes of traffic (the state of Delaware having thus marked the center lines of 450 miles of state roads); the requirement that all vehicles come to a full stop as they turn into or undertake to cross heavily traveled boulevards and express and main arterial highways (colloquially known as the "boulevard stop" or "through traffic stop"); the further segregation in some places of types of use or size of vehicle beyond the restriction against trucks on parkways, best exemplified by the restriction of the use of the Victoria Bridge at Montreal by vehicles over 6 ft. 6 in. in width to the hours between 11 P. M. and 6 A. M.; the plan of segregation of fast moving vehicles on Connecticut state roads during days of big football games by requiring the slow vehicles to use back roads and that the fast ones operate at about 30 to 35 miles per hour; one-way streets have been designated in large numbers; and at many intersections, left-hand turns have been prohibited.

Regional Plans.—In connection with the formulation of city and regional plans, a large amount of study is being devoted to planning for the proper provision of future traffic requirements. Such studies are being made on a regional scale for New York, Philadelphia, the "Niagara Frontier," San Francisco, Los Angeles, and elsewhere.

PARKING CARS

Much discussion has occurred of the extremely difficult "parking problem." It is acutely before the administrative authorities of all communities and many experiments are being made towards its solution. Some contend that it is a public necessity that parking space be provided adequate for the desires of all. At the other extreme are many who contend that there is no valid reason why a community should provide "garaging space" for cars while away from their home garages.

The tendency indicated by traffic ordinances enacted during the year is in the latter direction, the parking time having been more and more restricted and applied to an increasing number of streets in many cities and towns. This has resulted in the exploitation of patented and other garaging devices. The ramp garage is the best known among the former class, while the suggestion of a gigantic public parking space to be constructed under Chicago's water front park and under parks in New York are suggestions of the latter variety. The action on the part of several department stores in half a dozen different cities during the year in erecting garages for the special use of their patrons is an interesting development.

CONFERENCES

Many agencies have been active in studying street traffic matters. The Conference on Street and Highway Safety called by Secretary Hoover gave an impetus to the matter. A second national Conference was arranged as a first outcome. In addition, a local conference was held in St. Louis, the American Engineering Council appointed a special committee of recognized experts to study the matter, the International City and Regional Planning Conference held in New York in April devoted a session to traffic matters, the International Police Conference discussed at some length matters of traffic regulation and passed several resolutions with reference to the subject, and the meeting of the Chamber of Commerce of the United States listened to papers on the solution of metropolitan traffic problems.

WATER SUPPLY

BY THEODORE REED KENDALL

ENGINEERING EDITOR, AMERICAN CITY MAGAZINE

Chlorination.—About fifteen years ago chlorine, either in the form of hypochlorite of lime or liquid chlorine began to be used for the sterilization of domestic drinking water because of its ability to destroy the microbes of disease. Today, close to 75 per cent. of the people of North America drink chlorinated water and the installation of chlorinators is standard practice throughout this country. No matter how pure a source of water may be considered, no consultant will recommend omitting chlorinating equipment any more than he would recommend omitting the fire department in a community. If the water is pure, the chlorinating equipment is always ready in case of emergency and where the water is of questionable bacterial quality the constant addition of minute quantities of chlorine completely destroys pathogenic bacteria.

There are probably 200,000 people alive today in North America who would have died from typhoid fever or other water-borne diseases were it not for chlorination. Over 6,000 installations of chlorinating equipment have been made in the United States, which include those used on municipal water supplies, those used to sterilize the effluent from sewage treatment plants, where such effluents enter streams which are later used as the sources of domestic water supplies or where the effluent flows near public bathing beaches and such equipment is installed for the sterilization of the water in swimming pools. It is interesting to note that the water chlorinated for municipal water supplies in the United States in one day would fill a 12-inch pipe five times around the world at its greatest dimension.

Iodide Protection Against Goiter.—A public health measure of absorbing interest and outstanding importance has gradually been introduced into this country during the last ten years and is now almost universally used in certain districts in the United States. In the prevention of simple goiter by the administration of minute quantities of any form of iodine, mankind possesses an effective prophylactic against thyroid enlargement, especially during those periods of life when it is most prone to occur. Simple goiter is an enlargement or swelling of the thyroid gland—a gland of internal secretion—which lies in the front part and somewhat to the side of the neck. It may involve either one or both lobes of the gland and vary in size from the normal which can scarcely be noticed to the pendulous form.

The enlargement of the thyroid, now generally known as goiter, has been recognized as an abnormal condition for many centuries. There is some evidence that as far back as 2000 B. C. the Chinese were familiar with it and discovered that the eating of seaweed and the thyroid glands of animals and the use of crude sea salt would ameliorate or cure the condition. Enlargement of the thyroid has been observed not only throughout a long period of history, but it appears widely distributed geographically.

North America has its well-marked regions where simple or endemic goiter is quite prevalent. The zone extends roughly from the basin of the St. Lawrence westward across the Great Lakes Region and northwestern United States to the Pacific Northwest, taking in neighboring Canada, especially British Columbia and Alberta. The States of Washington, Montana, Michigan, Wisconsin and Minnesota are quite heavily affected. Nests of goiter appear in western New York State, in the foothills of the Appalachian Mountains in northwest Pennsylvania and in western Maryland. In general, it is found most prevalent in mountain regions or on high plateaus and at some distance from the sea, although nests may appear at other places.

Report on Goiter and Its Prevention.—*The Manual of American Water Works Practice* mentioned below discusses the question of goiter and treatment through the public water supplies in twelve paragraphs which may be summarized as follows:

1. The infectious theory of the origin of goiter does not appear to present enough conclusive evidence to justify its acceptance.

2. Deficiency of iodine is the most important, if not the main factor in the development of simple or endemic goiter.

3. Goiter is prevalent in those regions of the world where there is a deficiency of iodine in the water and food and is rare where sufficient iodine is present.

4. The thyroid gland is the essential organ of the body that draws iodine and issues it for physiological purposes.

5. Deficiency of iodine in the thyroid due to insufficiency of intake

leads to overgrowth of that gland with the production of definite and characteristic symptoms and signs of disease.

6. Simple or endemic goiter may be easily prevented by administering minute quantities of iodine in any form, especially at those periods of life when it is most liable to occur—during pregnancy and adolescence.

7. Iodine may be supplied by fruits and vegetables or by potable waters, known to contain iodine. In goiterous regions the deficiency may be supplied by iodide in confection form, by means of iodized table salt or by means of treating the public water supply with small quantities of sodium iodide.

8. Iodine prophylaxis among school children of adolescent age is thoroughly justified and has proved of incalculable benefit. It reaches, however, but a fraction of those who should be receiving the benefits of iodine prevention.

9. The iodization of table salt is a big step in the wider application of prophylaxis against goiter and has many points to commend it.

10. The iodization of public water supplies in those places where goiter is shown to be prevalent should be a logical measure for the protection of the whole community. There is no more inherent reason why water should not be iodized than there is why it should not be chlorinated or treated chemically for other necessary purposes. This is, however, still in its experimental stage and there may be demonstrated methods of relatively greater value in goiter prophylaxis.

11. The whole matter of the prevention of goiter should be under the supervision of the health authorities of the community with the advice and assistance of the sanitary engineering department and the local medical profession.

12. The diagnosis and treatment of the different types of goiter should be undertaken only by skilled and well-qualified physicians and surgeons.

Select References.—The outstanding accomplishment of the past year in the water works field is the publication by the American Water Works Association of the *Manual of American Water Works Practice*, after several years of preparation. In June, 1920, the Association established its Council on Standardization which had among its purposes the stimulation and development of much needed investigation and review of various features of water works practice by committees and specialists. From fifteen to eighteen of these committees have been in active service since that time.

This book, which will be found helpful to all interested in water supply, has been prepared primarily for the three general groups of active water works officials: First, the members of water boards and commissions, who shape the general policies of the water works under their control; second, the salaried officials who manage and superintend the work; and third, the specialists who design, manage or supervise those parts of the work of a highly technical character. During the last year about 50 members of the American Water Works Association coöperated in drafting the material for the Manual, subdivided into eighty topics. The work of these members has been reviewed by various committees, resulting in a book which is the coöperative effort of over 300 active water works men.

POLICE

By Arch Mandel

Director, Dayton Research Association

Crime and Administration.—Changes in methods of police administration have come so slowly that one or two years' review of this field is describing a static condition. In the past few years there have been improvements in mechanical facilities,—signal systems, appliances for traffic regulation, the wider use of the automobile, and in a few instances, at least, the installation of radio broadcasting stations. But whether the police department has become a more effective crime reducing agency cannot be stated definitely, because there exists no basis of comparison. Records are lacking. With the growth of cities, with the elimination of isolated areas through the automobile and good roads, the resultant complexity of living may reasonably be expected to have caused an increase in crime, but whether the rate has increased is another question. It is certain, however, that the people of this country have never been aroused as now by the prevalence of crime.

Effect of the Automobile.—In the last few years, old problems confronting the police have been made more complex and new ones added. The underlying causes may be a matter of debate, but the immediate causes are the automobile and prohibition laws. The automobile has multiplied the traffic problem, the control of which has fallen to the police. The innumerable ordinances adopted in every city for the regulation of traffic have seriously taxed the resources of police departments, because of the diversion of increasing numbers of policemen from general crime prevention to this function. Whatever may be the effectiveness of the police in regard to crime, they have made possible the movement of traffic. Another problem added by the automobile is its use in the commission of crimes. With the aid of the automobile, it has become an apparently simple matter to commit robberies in broad daylight in cities large and small, and for the criminals to effect a successful escape. This has created a perplexing situation, which as yet has not been met satisfactorily.

Prohibition of the sale and use of liquor is the second important factor, which in the last few years has increased the difficulties of police administration. Every community seems to have a considerable proportion of its citizens that is especially interested in the enforcement of these laws and seems satisfied if strenuous efforts are made in this direction, regardless of the resources or attention given to general crime prevention. These laws should, of course, be rigidly enforced, and traffic must be regulated, but it must be recognized that the emphasis placed upon these two specific problems has greatly reduced the relative number of policemen available for general crime prevention and detection. In other words, police departments have had their problems multiplied without having their facilities proportionately increased.

Improvements in Crime Prevention.—The crime prevention methods of the police departments are still those of the monitor. Policemen are assigned to definite districts, which they must keep as free from crime as possible. Foot patrol, while still the prevailing method, is being gradually, though slowly, replaced by automobile patrol. This newer practice provides for the surveillance of patrol posts by two policemen in an automobile. They are able to cover a larger territory more effectively than the foot patrolmen. Another improvement adopted by police departments for crime prevention has been the establishment of booths or substations in outlying parts of the city, at strategic points. To these booths, equipped with telephones, are assigned two or three men, one of whom remains at all times in the booth, so that he can be reached and be available when needed in his district. The others patrol the vicinity, making frequent reports to the booth, thus increasing their availability for quick service.

Criminal Identification. — Another forward step taken as an aid to police departments is the establishment of a national criminal identification bureau in the Department of Justice of the federal government. Up to two years ago such an identification bureau was maintained in Washington by the International Association of Police Chiefs. The transfer of this bureau to the government and the assumption by the latter of this function with more adequate funds and better facilities at its disposal, should help greatly the apprehension of criminals, a greater number of whom than ever before are interstate in their operations. In this field of criminal identification, the gradual substitution of the finger print for the Bertillon measurement system has caused a wider use of identification methods. Finger printing is simpler and more economical to operate, and smaller cities, heretofore without any such facilities, are introducing them. This, of course, increases the probabilities of apprehending criminals.

Heads of the Police.—In the more fundamental practices of police administration, no changes can be noted. The chief difficulty has been, and still is, the frequent turnover in the head of the department with every change in the municipal administration. It is taken for granted that anybody can fill the position of police commissioner, and if the incumbent is honest, people are satisfied. Experience, knowledge, and ability are incidental. By the time a capable citizen realizes the intricacies of the job and the problems to be solved, and has an inkling of how to solve them, he gives way to a green successor. The latter, having ideas of his own, puts these into effect and frequently neutralizes the progress made under his predecessors. Progress in police methods, because of this, has been as steady as climbing a greased pole.

Philadelphia, New York and Detroit.—At this moment, Philadelphia, New York and Detroit, among many other cities, furnish examples of this problem. Apparently prompted with a desire to have an effective and nonpolitical police administration, the Mayor of Philadelphia in 1924 appointed General Butler, who was given a leave of absence from the Marine Corps for the purpose, as Director of Safety. Disregarding political ties and influence, the General reorganized the department and waged a strenuous fight against lawlessness, particularly the enforcement of prohibition laws. Precinct lines were rearranged to eliminate as much as possible the former ward basis and its resultant intrusion of ward politics. The General has just completed two years of service, and as this is being written, the Mayor has asked for his resignation. New York City, after a continuous administration under one police commissioner for the past eight years, will in 1926, have a new police head, with the usual changes in policy and possible upheaval. Since 1916 Detroit has had four police commissioners and is now seeking a new one.

Records.—In the matter of maintaining and applying accurate records as a basis for formulating policies and methods, police departments are backward. Health departments did not commence to make progress in their fight against preventable disease and a high death rate until they studied the cause and incidents of disease, where it occurred, and how it spread. The primary requisite for intelligent administration is a knowledge of the problem, and this can be had only through adequate records.

Crime Commissions.—A significant movement in the past few years, concerning the crime situation generally rather than the police specifically, is the acute realization by the people of this country that the crime situation is serious and that strenuous measures must be taken if any progress is to be made in alleviating the situation. This awakening has resulted in the establishment of crime commissions in Chicago, Baltimore and Cleveland, one in the state of Missouri, and late in 1925 a national crime commission was organized. These organizations are citizen agencies, which make continuous fact-finding studies of the problem and seek by coöperation with public officials concerned and by disseminating information among the public, to bring about more productive methods in the administration of criminal justice.

Prevention.—The police with their "watchmen methods" are effective against offenses that may be classed as preventable—burglary, robbery, ordinance violations, and breaches against the public peace. Homicide and the large category of offenses that are responsible for the bulk of the work of the courts and fill the penal institutions are practically outside the control of the police. The police force must still remain the first line of defense in the direct prevention of crime, with extension and improvement of its present methods, but it should also assume a greater responsibility in the prevention of criminality by closer and better coöperation with the other forces in the community. To do this requires no change in form of organization, but does require a different viewpoint and a change in type of administration. Secondly, emphasis must be placed upon the scientific approach to police organization and administration. Failure to apply this method has been the outstanding weakness in this field and is largely responsible for the shortcomings in the fight against crime. Divorce of police affairs from politics and continuity of administration by qualified police commissioners is the first step and most urgent need. All this requires public support, and the promotion of it is the problem.

State Police.—Due to the changing social conditions in this country, the crime problem is not only one of the cities, but has spread to the suburban and rural sections. Areas are no longer isolated. This has been the gradual result of railways, hastened by the advent of the automobile and good roads. For all practical purposes, boundary lines of cities, counties and states have been wiped out. These changing conditions are being met by state police organizations.

As Bruce Smith puts it: "For the more effective handling of a rural crime problem with which the sheriffs and constables have demonstrated their inability to cope, the legislatures of about one-fifth of the states have placed highly organized forces of trained police officers in the field. In some cases, the chief consideration has been a desire for uniform enforcement of laws relating to commercialized vice, in others at least to some extent it has been the desire to control the disorders attendant upon frequent and serious industrial disturbances, and in still others, the whole problem of rural crime has been a primary factor. But whatever influences may have contributed to the establishment of these instrumentalities of the state, the forces themselves, with only minor exceptions, have quickly turned to the problem of rural crime in its general aspects. They could not have avoided it had they wished. The institution of regular and systematic patrols brought them into immediate contact with conditions which could not be ignored."

Policewomen.—A more intelligent era in the handling of crime and criminals by police departments is indicated by the employment of policewomen. About forty cities now have bureaus of policewomen, with staff ranging from one to thirty-five. Detroit, one of the later large cities to establish such bureau, has a staff of over thirty women, and the head of the bureau, a woman, has the rank of deputy commissioner. The functions of the policewomen are to patrol amusement places, where young men and women congregate, and in coöperation with the other branches of the department, to handle all the women arrested. Policewomen are particularly useful in dealing with young girls, who are in danger of becoming delinquents. As much as possible is done with them without formal arrest and court action, and those that are formally arrested are investigated and interviewed before appearance in court, so that information may be given the judge to enable him to make a more intelligent disposition of these cases. These are much needed socialized methods, which, if applied to the handling of men as well as women offenders, will be a distinct forward step in breaking the vicious circle of arrest and rearrest.

IDENTIFICATIONS

By J. E. Hoover

Chief, Bureau of Investigations, Department of Justice

Personal Identity.—In the daily struggle with the prevailing problem of crime, in the endless battle with a host of criminals, petty and great, timid and desperate, who either undermine the foundations or boldly strike at the basic institutions of the modern state, the question of personal identity is ever present. This is the key to the solution of the innumerable mysteries which confront police officials of every country of the world, the query that faces the Constable of the smallest village or township, the Sheriff of the outlying districts, the Chiefs of Police of our largest cities and the heads of all organizations engaged in the absorbing grapple with the vital insistent demands of practical criminology.

Identification. — A prisoner is brought into "Detective Headquarters" of a modern American city. He may have been taken into custody "on suspicion" to use the current phrase. The drag-net of the police finds its captives in both the marshes of the slums and the seemingly placid pools of the higher orders of society. At once the omnipresent question arises. Who is he? What is his record? Where is he wanted? The reason for his immediate arrest and the punishment to be meted out for the tangible known felony or misdemeanor is in a vast number of instances of comparative unimportance. Fugitives from justice, great and small, are as numerous as the sands of the sea. "Eternal vigilance" on the part of the police "is the price of safety." Somewhere in a distant part of the country or of the world an atrocious crime may have been committed,—a murder, a hold-up or a successful bank robbery, —and here in the guise possibly of a vagrant or a petty thief may be the culprit, long and unsuccessfully sought. Who holds the key? The suspect is not recognized by the local detectives or police. He is a stranger. However, travel in the last few generations has become increasingly simple, and flight from the scene of the crime is the first thought of the criminal. He may be wanted, and badly wanted, anywhere other than the place of his arrest and detention. He is photographed or "mugged," to use the vernacular.

Finger Prints.—He is then fingerprinted, that is to say, the impressions of the tips of each of his ten fingers are recorded on a card provided for this purpose. In practically all of our modern cities and penal institutions this scientific system of identification is now in vogue. This indubitable, ineffaceable, unchanging "finger tip signature" has superseded the Bertillon system of body measurements, the weakness of which lay in the more or less marked element of divergence based upon the personal equation, reliable or otherwise, of many operators. By a combination of numerical values given to certain lines, or ridge formations appearing in various finger prints, a "classification formula" consisting of a fixed numeral-and-letter combination is secured. This becomes the legible "personal identification signature" or mark of the individual under arrest. A similar formula or classification is then sought in the collection, large or small, in the files of the local Identification Bureau. In the majority of instances, of course, no similar record is found. Shall the quest end here? Is this all that can be done? In past years the road of endeavor did end abruptly at this point. It was possible, of course, to telegraph the finger print formula or classification of a suspect to the identification bureaus of several of the larger cities of the country, in the event of any definite pressing suspicion arising, or to such specific localities as the speech, clothing or papers in the possession of the suspect suggested, but that was all.

Central Bureau.—It would appear axiomatic that there existed for years an urgent growing need for the establishment of some central clearing house of criminal information, records and data of this nature, to which the zealous but harassed police chiefs of the country could turn in these daily emergencies, a depository to which each might send the finger-print records of both his suspected and known criminals, securing in turn therefrom the history of the criminals as recorded from all parts of this and other countries, the place or places at which they might be sorely wanted, the penitentiaries from which they may have escaped and the nature of the crimes, petty or capital, which remained unexpiated.

The credit for the establishment of this vitally essential institution is mainly due the International Association of Chiefs of Police, a well known organization comprising in its membership the executive officials of practically every large and important city of the United States and the Dominion of Canada. It was natural that this need should be most acutely felt by these officials who possessed first-hand knowledge of the benefits which would accrue therefrom.

U. S. Division of Identification.—It was primarily because of the initiative and efforts of this organization that, in an act passed by the Congress of the United States covering the general expenses of the Bureau of Investigation of the Department of Justice for the fiscal year ending June 30, 1925, there appeared a special provision authorizing and providing funds for the acquisition, maintenance, and exchange of criminal identification records with the law enforcement officials of the Government and states. This was the genesis of the present National Division of Identification maintained and operated by the Bureau of Investigation of the Department of Justice. Sufficiently commodious quarters for present needs were at once secured in the Hurley Wright Building, 1800 Pennsylvania Avenue, Washington, D. C., and an efficient technical and clerical staff organized and placed in active operation. The Division of Identification started its organic existence with a rich technical endowment. There was bequeathed to it at its inception the extremely valuable and comprehensive finger-print collections possessed at the time by both the International Association of Police Chiefs and the great Federal Penitentiary at Leavenworth, Kansas. In size and character, these collections were invaluable.

Results.—Statistics are, of course, uninteresting and devoid of real significance to all but those technically qualified to judge as to their meaning and comparative value. It is difficult, however, to convey any idea of the remarkable growth and practical efficacy of the Division of Identification without resorting in a minor measure to their use. During the fiscal year ending June 30, 1925 there were received by the Identification Division 104,660 finger print records of criminals, great and small. During the same fiscal year there was accomplished by the Division for the law enforcement officials of the country a total of 38,150 actual identifications or 22.46 per cent. of all prints received, or almost one identification of each four prints received. The full significance and value of these figures may not be readily grasped by the average layman. This means that in response to practically one out of four inquiries, the Division of Identification was able to respond, by telegraph or otherwise, that the individual concerning whom inquiry was made, had a criminal record or was wanted by some police or law enforcement officer or bureau, or that possibly both of the foregoing conditions existed. The value of information of this nature is, of course, clearly apparent. There are now on file in the Division of Identification approximately one million finger print records, that is to say, one million violators of the country's laws,—past, present or potential enemies of society,—are recorded in the archives of the Division in such a manner as to place their identities and records immediately at the disposal of the law-enforcement officers of this or any other country. There are at the present writing one thousand and twenty-nine actual current contributors of criminal information and data who forward their finger-print records and receive, without cost of any kind, the prompt response to all inquiries which the need and exigencies of the work demand. The Division is receiving approximately five hundred finger-print records daily and the daily data received, as well as the number of actual contributors, is steadily increasing.

Significance.—This unique national "Service Institution" is a new element among the forces engaged in combatting the apparently spreading waves of criminality of the present age. Its practical, essential continuing value has been unmistakably demonstrated. Here is nothing theoretical or visionary, nor does there appear any apparent ground for argumentation. There are no personalities involved nor any individual gain or aggrandizement. The law-abiding people of the community receive its full and direct benefits; only the known and recorded criminal is injured by or through its inception and operation. The cost of its maintenance is so small as to be negligible. Its full personnel is forty-eight. To use the trite and hackneyed phrase its work is "only in its infancy." There has perforce been no undignified advertising of its existence, merits or value. It is practically unknown to all except those whose daily labors lie in concomitant and parallel lines, or if and where known, the true nature, value and efficacy of the function it performs in aiding in the detection and prosecution of crimes is but partially realized or understood. Its growth, however, is inevitable and there are practically no limits to the scope of the service it may perform. It is dependent solely upon the continuing support of the practical forces of law and order. This support is, of course, assured, and as the knowledge of the activities of this great governmental clearing house of criminal information data increases, as the leaders of public opinion become more familiar with the significance of this new development in the field of criminology, we may look for a remarkable corresponding increase in the range and influence of its labors and its consequent usefulness to the community at large.

ELECTRIC LIGHTING AND POWER

By Delos F. Wilcox

Public Utility Expert, Grand Rapids

BASIS

Use.—The extent to which electricity has superseded gas for public and private lighting is not exactly known. In many cases the gas used for both lighting and heating passes through the same meter. But it is known that the use of open-flame gas burners has been almost entirely abandoned; that the primary use of gas at the present time is for cooking, heating and industrial purposes; that in many of the smaller communities where electricity is available no gas works exist; that the tendency even in modern residences, stores and offices and other buildings is to rely primarily upon electricity for light, with gas available in some cases for standby or emergency service; that in street lighting the tendency is all away from gas to electricity. It seems strange that this change has not reduced the volume of gas required for domestic uses, but it has not; and gas to-day is still an essential utility with a steady growth in its business. But so far as lighting is concerned, interest and attention are centered at the present time upon developments in the electrical field.

Capital.—Electricity generated at central stations, and transmitted and distributed for general use for light, heat and power, has come to be the greatest of the local public utilities. The total investment in electric plants and systems is not definitely known, but men in the industry claim that it is now more than seven billions of dollars. For the five-year period, 1921 to 1925, inclusive, the investment in additions and extensions is given by the *Electrical World* (Nov. 21, 1925) as $2,473,167,000, accumulated as follows:

1921	$222,318,000
1922	324,016,000
1923	602,143,000
1924	692,440,000
1925	632,350,000

These figures apparently represent gross capital costs, without noting serious diminution by the waste of old capital in the industry, as evidenced by abandonments and accrued; and incomplete as to depreciation. The 1925 investment was divided roughly as follows:

For fuel-burning generating plants	$174,950,000
For hydro-electric generating plants	106,000,000
For transmission systems	130,680,000
For distribution systems	220,720,000
	$632,350,000

The gross earnings of the electric utility are increasing very rapidly. Their yearly total passed the billion-dollar mark not more than three or four years ago, but statistics for the first six months of 1925 indicate a present yearly total of approximately $1,400,000,000.

Water Power and Steam Power.—During this six months period the total amount of power generated was 29,104,105,000 kilowatt hours; of which 23,487,105,000 k.w.h. was accounted for in sales to consumers, leaving for plant use and line losses an amount equal to 19.3 per cent. of the total power generated. Water power was 38.48 per cent. of the total power generated; and steam power was 61.52 per cent. While the movement for the development and utilization of water power went on apace, those best informed as to available sources of hydro-electric power and of the increasing and probable future demand for power think that the future relative importance of water power has been greatly exaggerated in public opinion; and that in all probability the proportion of the total power demand supplied by hydro-electric plants will never be substantially greater than it is now.

COSTS

Corporation Costs.—During the first six months of 1925, the amount of central station electricity consumed for lighting purposes was 27.87 per cent. of the total; for general power uses, 58.81 per cent.; and sold to electric railways, 13.32 per cent. The published statistics for this period do not show the revenues derived from each of these three classes of service, but for the three months, May to July inclusive, this separation is available. The distribution of power consumption is 27.5 per cent., 58.8 per cent. and 13.7 per cent. for the three classes of service respectively, almost the same as for the six months period. The earnings are 69.8 per cent. for lighting; 26.2 per cent. for general power uses, and 4.0 per cent. for power sold to electric railways. Translated into rates per unit of power sold, the averages for the three classes of service are as follows:

For lighting	6.73 cents per k.w.h.
For general power uses	1.18 cents per k.w.h.
For electric railways	0.78 cent per k.w.h.

In other words, the lighting consumers on the average paid nearly nine times as much per unit of electric energy consumed as the electric railways paid, and nearly six times as much as industrial power users paid. This comparison emphasizes a contrast between the rate policies which prevail in some publicly owned systems, where small residential consumers are given the benefit of low rates, and those that prevail with most of the private companies, where comparatively high rates are charged for small consumption; while the big consumers get a very low rate.

On the side of a more nearly uniform rate per unit to all classes of consumers, it is claimed that as a public utility electricity should be made available for as wide a use as possible, something after the manner of the letter service in the Post Office. On the other side it is claimed that the complicated rate schedules which prevail with most of the companies are based on the cost of the different classes of service, and if power uses are favored even on that basis, it is because the development of power consumption tends to spread out the load and increase the efficiency of operation with the result that the average cost of electricity per unit of service is reduced.

Massachusetts Controversy.—In a notable decision handed down by the Department of Public Utilities of the State of Massachusetts in August, the residence "A" rate of the Edison Electric Illuminating Company of Boston was reduced from 9.5 cents to 8.5 cents per kilowatt hour. The department called attention to the fact that the customers paying the residence "A" rate furnished nearly one-half of the company's gross revenues, though using only about one-fifth of the electricity sold; while users of approximately three-fifths of the electricity sold paid prices from 3 cents down to 1.2 cents per kilowatt hour. Commenting upon these facts, the Department said:

"A policy of selling electricity at a rate very close to, if not below, cost, in order to secure the business of those who might otherwise install their own steam power or electric generating plants, and which forces a company frequently to increase its generating capacity and to issue large amounts of securities and capital stock to meet the cost of these enlargements, thereby constantly increasing its investment and its interest and dividend charges, holds little hope to the ordinary user of electricity of securing in the future his electricity at a low cost. Even if this were a wise policy in the long run from the point of view of the company, it ought not to be carried to such lengths that the ordinary member of the public is compelled to carry an undue burden while it is being accomplished."

PENDING DEVELOPMENTS

Muscle Shoals.—The year 1925 was a period of investigation, discussion and progress in the development of electric light and power as a utility. Early in the year Congress had a prolonged and bitter struggle over the disposition to be made of the government plants at Muscle Shoals; but was unable to reach a conclusion in the matter. Hence it was referred to a special commission, appointed by the President, for investigation and report. This commission was unable to agree, and in November it submitted two reports to the President, the details of which were not made public at that time. The Wilson Dam and the steam power plant at Nitrate Plant No. 2, if operated together, will ultimately have a maximum capacity of about 600,000 k.w. The Muscle Shoals controversy hinges upon the questions of government operation, the manufacture of nitrates, and the disposition of surplus power. The first units at the Wilson Dam were put in operation about the middle of the year and the power developed during the testing period was sold to the Alabama Power Company at 2/10 of a cent per kilowatt hour.

Colorado and Hetch-Hetchy Questions.—During the year, the controversy over the disposition of the waters of the Colorado river continued to rage, with the state of Arizona still refusing to sign the interstate compact negotiated two years ago by the seven states tributary to the river. Southern California, and particularly the City of Los Angeles, insist that a high dam be built in Bolder Canyon for the control of flood waters and for the development of electric power and an enlarged water supply for domestic purposes.

The Hetch-Hetchy water supply and power project of the City of San Francisco was advanced sufficiently so that the Moccasin power plant of 70,000 k.w. capacity could be put into operation during the summer. In the absence of municipal facilities for the distribution of power, the city entered into a temporary agreement with the Pacific Gas & Electric Company for the sale of the output of the Hetch-Hetchy plant to the company for $2,000,000 a year. This contract caused a great turmoil in San Francisco and a political overturn favorable to the distribution of Hetch-Hetchy power directly by the city through a municipal distribution system.

Bay of Fundy Proposition.—Throughout the country large steam power and hydro-electric projects were in course of development, and the process of inter-connection of transmission systems and the consolidation of companies went on apace. As preliminary to the development of electric power on a large scale through the harnessing of the tides in the Bay of Fundy by private enterprise, the voters of Maine gave their permission for the exportation of the power which might be developed from this source. The scheme as outlined by the hydraulic engineer interested in this development would involve a capital investment of from $75,000,000 to $100,000,000, and the generation of energy to the amount of not less than 450,000 k.w.

PRIZES

Bonbright Prizes.—Early in the year Bonbright and Company, investment bankers of New York, offered prizes aggregating $10,000 for "the best contemporary review and forecast of the electric light and power industry," to be written in the form of an article dated as of January 1, 1930, summarizing the progress of the decade from 1920 to 1930. The directors of the American Superpower Corporation (of Delaware), sixteen men prominent in the utility field, acted as judges. They also offered an additional prize to be awarded in 1930 to the contestant whose paper, reviewed at that time, should appear to have most nearly approximated the actual development of the facts during the decade.

The first Bonbright prize ($5,000), was awarded to David Cowan, of the Sun Life Assurance Company of Canada, Montreal.

For the aid of the contestants Bonbright & Company issued a *Data Book of Electric Light and Power Facts,* showing at the beginning of 1925 approximately 16,377,600 customers of the electric light and power industry and over 154,000 employees. It was also shown that at the beginning of 1924 less than 43 per cent. of the population of the United States lived in dwellings lighted by electricity and less than two per cent. of the railroad mileage had been electrified. It was also stated that 86 per cent. of the 6,000,000 farms in the country were not provided with electricity.

Mr. Cowan, in his prize-winning paper, forecast an increase of about 65 per cent. in the total amount of power generated from 1924 to 1929, and an increase of nearly 50 per cent. in the number of customers during the same period. He forecast an increase in capital investment from $6,600,000,000 indicated as of January 1, 1925, to $9,700,000,000 in 1929, and he anticipated gross revenues of about $2,000,000,000 in the latter year.

In concluding his paper, Mr. Cowan felt justified in drawing one definite conclusion from the vast developments in the electrical industry during the decade, namely, this: "The existence of excellent power services in all important sections of the country has been the final step in the economic transformation of the rural community. First the railroad, then the automobile and now the advent of cheap electrical power. As a result, life on the farm to-day offers all the special facilities possessed earlier in the decade only by the urban electrified home. By the development, therefore, of super-transmission, by the provision of an efficient and economical electrical service to country districts, leading interests in the light and power industry can feel that they have accomplished something of national significance and their contribution to the prevention of rural depopulation can well stand as a monument to their work."

INTERSTATE

Pennsylvania Giant Power Report.—Perhaps the most important event of the year in the electric light and power field was the publication of the report of the Giant Power Survey Board of Pennsylvania under the chairmanship of Governor Gifford Pinchot. This report was addressed to the Pennsylvania Legislature pursuant to the terms of an act passed by that body in 1923. The survey was made under the direction of Morris L. Cooke of Philadelphia, a well-known consulting engineer.

In his message transmitting the Giant Power report to the Pennsylvania Legislature, Governor Pinchot raised the tremendous political issue of public control over the power monopoly which he sees already in an an advanced stage of development. He pointed out the tremendous significance of the industrial revolution caused by the introduction of steam power, and said that the impending change from steam to electricity will have no less significance. He urged that the great social and industrial conflicts which resulted from the steam revolution be avoided by wise foresight in developing sound public control of electricity as a power agency.

"Giant Power," said he, "is a plan to bring cheaper and better electric service to all those who have it now, and to bring good and cheap electric service to those who are still without it. It is a plan by which most of the drudgery of human life can be taken from the shoulders of men and women who toil, and replaced by the power of electricity.

"To the housewife Giant Power means the comforts not only of electric lighting, but of electric cooking and other aids to housework as well. To the farmer it means not only the safety and convenience of electric light, but electric power for milking, feed-cutting, wood-sawing, and a thousand other tasks on the farm. To the travelling public it means the speed and cleanliness of electric transportation. To the dwellers in industrial cities it means freedom from the smoke nuisance and the ash nuisance. To the consumer it means better service at cheaper rates. To every worker it means a higher standard of living, more leisure, and better pay."

Need of Regulation.—But Giant Power means all these things, in Governor Pinchot's opinion, only on condition that the electric industry is brought under effective public regulation. "No one who studies the electrical developments already achieved and those planned for the immediate future can doubt that a unified electrical monopoly extending into every port of this Nation is inevitable in the very near future," says the Governor. . . . "Producers of electric current commonly sell it to large consumers for a fifth or a tenth of the price they charge to the head of a family, and for much less than the small industrial consumer pays. It is the small user, the average consumer, to whom the companies charge their highest rates.

"Nothing like this gigantic monopoly has ever appeared in the history of the world. Nothing has ever been imagined before that even remotely approaches it in the thoroughgoing, intimate, unceasing control it may exercise over the daily life of every human being within the web of its wires. It is immeasurably the greatest industrial fact of our time. If uncontrolled, it will be a plague without previous example. If effectively controlled in the public interest it can be made incomparably the greatest material blessing in human history."

Effect of Subdivision into States.—In his statement of the problem and in his suggestion of specific measures for the promotion of Giant Power as a public servant, Governor Pinchot challenged the attention of the country and provoked the consideration of many grave issues by the electrical industry and by the consuming public alike. One of the perplexing questions involved is the extent to which the transmission of electricity across state boundaries constitutes interstate commerce which cannot be regulated by the states. Herbert C. Hoover, Secretary of Commerce, has gone on record as strongly opposed to federal regulation, and the specific plans proposed by Governor Pinchot himself are based upon the assumption of state regulation.

In October the administrative board of the American Engineering Council authorized the appointment of a committee to review and analyze the Giant Power report issued by Governor Pinchot, and to report at the earliest practicable moment. Late in the year the governors of New York, Pennsylvania and New Jersey appointed a tri-state committee to study the transmission and control of electric power in these three states with a view to joint action for the control and regulation of their interstate traffic in electricity.

SEWAGE DISPOSAL

By George W. Fuller
Consulting Engineer, New York

Chicago Problems.—The outstanding achievement in 1925 in this field was the putting in service of large plants for purifying sewage by the activated sludge method at Milwaukee and Indianapolis.

Much discussion was given to the sewage disposal problems at Chicago where the program of the local sanitary district was investigated and reported upon by a Board of twenty-eight engineers. The activated sludge process was adopted for the North Side District and a plant to serve about 800,000 people is now under construction. For the West and South Side plants the trickling filter and two story settling tank has been adopted at areas more isolated than at the North Side.

The situation at Chicago is related to the diversion of water from the Great Lakes through the Drainage Canal, put in service in 1900. The War Department has ruled that Chicago must meter its water supply and build sewage purification works at a stipulated rate, during which process lake water may be used for diversion, although city and industrial plants served by the Canal have greatly overtaxed the capacity of the Canal as originally estimated.

Process.—The so-called oyster scare in the winter of 1924-25 and the agitation concerning unsanitary conditions at bathing beaches has given real impetus to the solving of numerous sewage disposal problems along waterfronts. New York City, Los Angeles, Cal., New Rochelle, N. Y., and some other places have adopted fine screening plants with dispersion of the screened sewage into deep water.

Sedimentation in some cases is more suitable and more efficient than fine screens. The use of sedimentation has been stimulated by developments at Syracuse, N. Y., where the sludge is removed by mechanical appliances and mixed with industrial wastes from the Solvay plant.

A combination of sedimentation tanks with activated sludge process has been studied for many problems in this country, England and Germany.

Utilization of Sewage Gases.—Attention is being again directed to the possibilities of gases from sewage decomposition. Sewage gas was utilized some years ago at Atlanta for heating and cooking, and the gas from the tank at Austin, Tex., is collected and burned to avoid odor and nuisance. The recent experience in Germany, where gases from sludge digestion has been collected and sold for delivery to the city gas mains, has renewed interest in the possibilities of such gas for providing power in connection with the activated sludge process.

Investigations. — The Experiment Station of the State of New Jersey has published additional results of its investigations of Imhoff tanks and sprinkling filters, and expects to extend the scope of its investigations to other forms of treatments during the forthcoming year. These investigations have brought to light much interesting information on the behavior of tanks and filters under various operating conditions and have established some practical rules as well for control of sludge drying and tank foaming.

Additional work has been done at many places on chlorination of sewage. These investigations in general have resulted in the raising of doses formerly regarded as adequate for sewage sterilization. Among other points of interest in connection with chlorination may be mentioned the application of chlorine to the dosing chambers of sprinkling filters with a view of controlling odors and the breeding of the small moth-flies hitherto so troublesome.

"Public health engineering" is the expression adopted by the engineers of the American Public Health Association in lieu of the former expression of "sanitary engineering." Regardless of the name the practical works accomplished have been noteworthy during 1925 and the activities that are underway at various cities along the Great Lakes and the Atlantic seaboard show that there is a true awakening to the responsibility of protecting public waterways from sewage wastes.

REFUSE COLLECTION AND DISPOSAL

By H. Burdett Cleveland

Consulting Sanitary Engineer, New York

Collection of municipal refuse, which includes garbage, ashes, rubbish and street sweepings, is becoming, more and more, a municipal undertaking in American cities as compared to collection by private scavengers or by contract.

A notable tendency during the past few years, emphasized in several instances during 1925, has been the recognition by city governments of the engineering character of the problems involved in both collection and disposal and a realization of the unsoundness of depending entirely on commercial salesmanship as a guide to administrative action.

Of the several methods thus far generally employed, such as dumping, plowing in and trenching, hog feeding, reduction or the extraction of grease and fertilizer, incineration, and the newer Beccari process, it may be said that incineration of garbage mixed with rubbish is becoming the most widely adopted method.

New Methods.—During 1925, Buffalo abandoned its piggery and arranged for the construction of an incinerator. A 280-ton incinerator is being completed for Philadelphia; New York has twelve mixed garbage-and-rubbish incinerators in operation or under construction and six more are authorized, the combined rated capacity of these eighteen incinerators being 2,870 tons daily. The bulk of the garbage produced by New York City is still dumped at sea with consequent frequent fouling of bathing beaches along the New York and New Jersey shores. St. Louis is planning the construction of five additional incinerators beside the one put in operation in 1922, following river dumping, reduction and hog feeding, the two latter methods having been successively used since 1910. Similarly, an incinerator program is being worked out for New Orleans. Minneapolis is building a new 210-ton incinerator at a cost of $204,100.

Comparatively few garbage reduction plants have been installed recently, one of the largest of these being at Schenectady. A ten-year contract at Baltimore for reduction of garbage has been in operation for four years. Incinerators are being built for rubbish disposal at Baltimore. Cincinnati has let a five-year contract for reduction.

Hog-feeding projects are being operated at Akron, Denver, Newark, N. J., and Los Angeles and at several other large cities, and many of the smaller municipalities. This method has been abandoned at several places, notably at Buffalo, owing to the difficulty of disposal without nuisance of the unconsumed garbage, amounting to from 35 per cent. to 50 per cent. of the garbage delivered, and of the droppings.

Italian Plan.—A new method of garbage disposal developed recently is that employed in the Beccari system which originated in Italy. In this process garbage unmixed with rubbish is allowed to ferment and to undergo bacterial reduction in closed concrete cells provided with shelf-like projections around the walls which permit the circulation of air. Odors are absorbed in filter material at the top of each cell and liquid drainage passes through the perforated floor of the cell.

In about ten days after the cell is filled the temperature of the mass of garbage reaches 140° F. and increases to 170° F. in twenty days. In about forty days the bulk of the garbage in the cell has been reduced by 25 per cent. and the residue consists of a dry sterile fertilizer base.

Advantages of this method are control of odors, permitting the construction of plants in locations not requiring long hauls, and conservation of fertilizer elements. Disadvantages are its restriction to garbage only, and in some locations, the difficulty of disposing of the drainage.

A plant of this type has been operated for two years at Scarsdale, N. Y.

The only generalization possible respecting the status and progress of garbage disposal during the year is that incineration has become more definitely the prevailing method in new projects, replacing hog feeding which had been resorted to in many instances during the World War period, replacing at several of the larger cities the more costly and uncertain process of reduction.

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Librarian, Bureau of Municipal Research, New York

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DIVISION XI
PUBLIC FINANCE

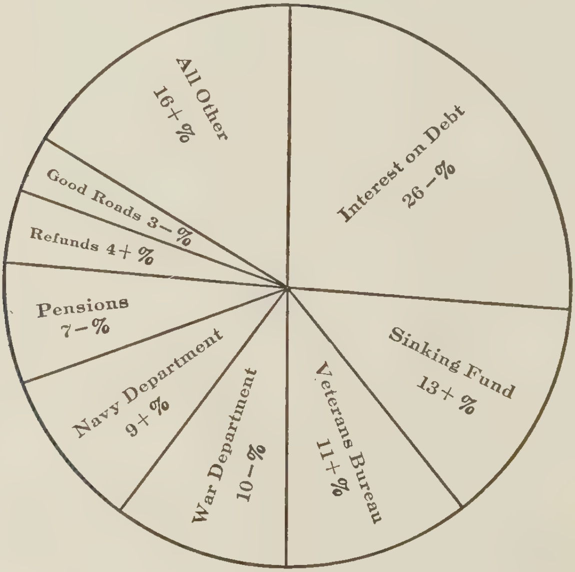
NATIONAL INCOME AND OUTGO

By Merlin H. Hunter
Professor of Economics, University of Illinois

The governmental units of the United States collect in taxes more than $7,500,000,000 a year, an average of about $70 per capita, and spend more than this, for public debts are being created more rapidly than they are being paid. With such a per capita burden as this, and the attendant drain upon the social income of the country, the unprecedented interest in public revenues and expenditures can be readily understood.

The important spending units are the federal government, the state governments, and the municipalities, although such units as counties, townships, school districts, and park and sewer districts help to swell the total. The items for which expenditures are made are much the same in the different political units, although the emphasis upon each is very different. The nature of the expenditures of the federal government are indicated in the following chart. The total expenditures for 1925 were about $3,000,000,000.

Graph No. 1.—Expired Taxes

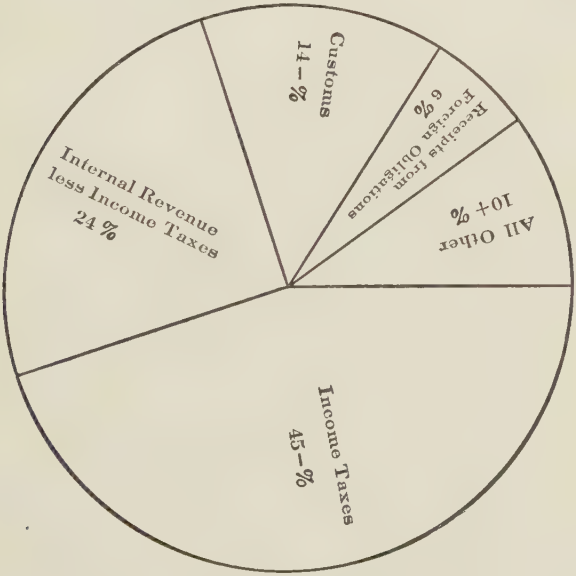


A glance at the chart will show that the expenditures for war, in its preparation, prosecution, and aftermath, easily constitute more than three-fourths of the total. The interest charge alone, the greater part of which arose from war borrowing, represents an item greater than the total expenditures of the government in pre-war years. Since the war, each year has shown a decrease in the total of federal expenditures, yet the year just past showed this to be considerably smaller than for preceding years. Many of these reductions came from the cessation of the activities of the war finance corporation, the shipping board, and the settlement of the claims of the railroads against the government.

The expenditures of a civil nature have shown a steady increase, as have also the ordinary expenditures for the army and navy. The present indications are that, other than for a decrease in the interest charge, little can be expected in the way of lessened federal expenditures, but rather that each year will see an increase. In fact, the expenditures chargeable against ordinary receipts were greater in 1925 than in the previous year. Certainly they will never be near what they were in the years preceding the war.

Federal Revenues.—The large expenditures for the war, only a part of which were met from borrowing, necessitated an expansion in the revenue system. The reduction in expenditures for the post-war years has been accompanied by a readjustment of the revenue system, but it has reached, by no means, the proportions of pre-war years. A glance at the following graph will give some indication as to the present sources of revenue. The total receipts for the fiscal year 1925 were about $3,500,000,000.

GRAPH No. 2.—TAXATION



TAXATION

BY MERLIN H. HUNTER

PROFESSOR AT UNIVERSITY OF ILLINOIS

Rates.—As indicated by the graph, considerable reliance for Federal revenue is placed on the taxation of personal incomes. The law in effect during 1925 was that signed by President Coolidge on June 2, 1924. The normal rates under this law are 2 per cent. on the first $4,000 net income, 4 per cent. on the next $4,000, and 6 per cent. on the remainder. Non-resident alien individuals, unless residents of Canada or Mexico, must pay 6 per cent. on the entire net income. In addition to the normal tax, a surtax is imposed upon net incomes of more than $10,000. These surtax rates begin at 1 per cent. on the amount of net income between $10,000 and $14,000 and increase on successive amounts of income as it increases until a maximum of 40 per cent. applies to all net incomes of more than $500,000.

Returns.—Returns must be made by all unmarried individuals whose net income reaches or exceeds $1,000, and by married individuals whose net income is $2,500 or more. A gross income of $5,000, however, regardless of net income, must be reported. Single individuals have an exemption from the tax of $1,000, while a married person living with wife (or husband) has $2,500. An exemption of $400 is also allowed for each person receiving his chief support from the income recipient. Should the status of a taxpayer change during the taxable year from single to married, then the exemptions provided are to be prorated on a monthly basis and the sum of the two is the actual exemption allowed.

Earned Income. — Recognition is made of the distinction between earned and unearned income. "Earned income" comprises those amounts received from wages, salaries, professional fees, or any other payment for personal services actually rendered. All net income of $5,000 or less is to be considered as earned income. If the net income is more than $5,000, the first $5,000 is considered "earned" but in no case will more than $10,000 be placed in this category. There is never a case, therefore, where more than $5,000 (the difference between the $5,000 always treated as earned and the $10,000 maximum of earned) is subject to a classification in one class or the other. No difference is made in the rates which apply to earned and unearned incomes, but the former are credited with 25 per cent. of the tax assessed against them.

In reality there is no attempt to make distinctions between actually earned incomes and those which arise from other sources. One individual may receive a salary of $20,000 and in addition receive interest from bonds of $3,000, yet the law considers this entirely earned. A university president, on the other hand, may be much more nearly earning $20,000 than is another earning $5,000, yet the law makes no recognition of this. The following table shows the total amount of tax assessed, normal and surtaxes, against net incomes of various amounts. The application is to a married person with no dependents. The maximum earned income is allowed. The last column shows the actual percentage the total tax bears to the net income.

Net Income	Total Tax	Percentage of Tax to Net Income
$ 3,000.....	$ 7.50	.25%
8,000.....	105.00	1.31%
10,000.....	165.00	1.65%
20,000.....	975.00	4.88%
50,000.....	6,095.00	12.19%
76,000.....	13,475.00	17.73%
100,000.....	22,575.00	22.58%
200,000.....	65,575.00	32.79%
500,000.....	199,575.00	39.92%
1,000,000.....	429,575.00	42.96%

Publicity of Income Taxes.—The publicity feature now in operation has caused more adverse criticism than any other part of the law. The provision is that "the Commissioner shall as soon as practicable in each year cause to be prepared and be made available to public inspection in such manner as he may determine, in the office of the collector in each internal revenue district, and in such other places as he may determine, lists containing the name and the post office address of each person making an income tax return in such district, together with the amount of the income tax paid by such person." The objection voiced against this provision is that it gives unwarranted publicity to private affairs which may be decidedly disadvantageous when becoming to the knowledge of business rivals.

It will be noted that it is the amount of tax paid that is made public and not the returns made by the tax payer. The law does provide, however, that the returns upon which the tax has been paid shall constitute public records. They shall be open to inspection, however, only upon the order of the President and under rules and regulations prescribed by the secretary and approved by the President. However, the Committee on Ways and Means of the House, the Committee on Finance of the Senate, or a special committee of the Senate or House, has the right to call on the Secretary of the Treasury for any data of any character contained in the returns. These committees, or agents appointed by them, have the right to inspect the returns at such times and in such manner as they may determine. In addition the proper officer of any state has, upon the request of the governor, access to the return of any corporation.

Sources of Information.—The income tax is, in general, levied upon the basis of the declaration of the income recipient. This is supplemented by information at source under the provision that "all persons . . . making payments to another person of interest, rent, salaries, wages, premiums, annuities, compensation, remunerations, emoluments, or other fixed or determinable gains, profits, and income of $1,000 or more in any taxable year . . . shall enter a true and accurate return to the Commissioner . . . setting forth the amount of such gains, profits, and income, and the name and address of the recipient of such income." Collection at source is used only in the case of incomes, subject to tax, going to individuals without the United States. Under such conditions the payee is required to deduct the 6 per cent. normal tax.

Tax Appeals.—In order to facilitate the adjustment of disputes arising between the government and the tax payer a board of tax appeals has been created. The permanent board is to be composed of seven members although for the first two years the number may be as large as twenty-eight. The members are appointed by the President with the advice and consent of the Senate and those of the permanent board are appointed for a term of ten years. The board as a whole, or divisions of it designated by the chairman, are to hold meetings at places considered desirable, for the purpose of hearing and settling disputes. In proceedings in court to recover any amounts paid in pursuance of a decision of the board, the findings of the board are taken as prima facie evidence of the facts therein stated.

Tax-Exempt Securities. — Much criticism is voiced of the effects of tax-exempt securities upon the success of the income tax. Chief Justice Marshall held that the right to tax is the right to destroy. Consequently the interpretation placed upon the federal constitution that one political division shall not interfere with the prerogatives of any other division has resulted in no political unit levying taxes upon securities issued by another unit. This condition presented no particular problem until the progressive rates were introduced. Securities of political units were generally issued at a lower rate of interest than that carried by other types of bonds and this difference very largely balanced the advantage of tax exemption.

The sur-tax rates of the federal income tax change the situation. Since these cannot be made to apply to the incomes from state and municipal bonds, returns from these become particularly desirable to the recipient of large incomes. If his income be in the higher brackets, a 5 per cent. municipal bond may net him as much as an 8 or 9 per cent. industrial bond. Not only this, but the remainder of the income does not reach to the higher brackets. It is because of this supposed practice that the claim has been made that the rich are escaping their fair share of taxes and that consequently a greater burden is being placed upon those less able to bear it.

Most concern is shown over state and municipal securities since it is the income from these to which the federal surtaxes cannot apply. The amount of these outstanding has been variously estimated above and below $15,000,000,000. It has been pointed out by some, while admitting the fact of a lower rate of interest because of the tax-exempt feature, that the tax collected would amount to more than any saving from the lower interest rate. As a whole, this is doubtless true, but it does not apply to all the political units concerned. Municipalities do not use the income tax, while the states which use it have but low rates; consequently they would feel no particular advantage but a disadvantage in being compelled to borrow at a higher rate of interest. It is doubtless some such consideration that caused the proposed amendment, designed to stop the future issue of such securities, to meet such violent opposition from the Representatives from southern states. The states and municipalities of the South are but entering upon many improvements which have been accomplished in other sections of the country through the issue of tax-exempt bonds. It is felt that a denial of the privilege of tax-exempt bonds would place these localities under an unwarranted hardship in providing public services.

Many claim that the existence of tax-exempt securities and their purchase by the wealthy class are burdening industry by shunting the savings of the rich to this form of investment and forcing the small investor to buy industrial securities. The extent to which this is true is obviously incapable of definite proof. When one considers, however, that the total outstanding issues of past years is approximately $15,000,000,000 and that the annual social income of the United States is more than $70,000,000,000, it seems that the annual issue of tax-exempt securities would not deprive industry of any great proportion of the total investments. One must also remember that the funds borrowed by governments are not usually lost to industry. Funds used to purchase bonds issued to construct a highway, canal, or building will stimulate activity in the industries furnishing material for these enterprises just as much as if the enterprises had been undertaken by individuals.

Estate and Gift Tax.—In emergencies the federal government has often made use of inheritance taxes, but gave them up with the passing of the emergency. It has not given them up, however, after the emergency of the World War, but seems inclined to continue their use as a part of the ordinary fiscal system. The levy at present is not strictly upon inheritances but upon the whole of the estate before any division is made. The annual returns fluctuate around $125,000,000. A deduction of $50,000 is allowed from the net estate before the rates apply. These are progressive from 1 to 40 per cent. The 40 per cent. rate applies to the amount by which the net estate exceeds $10,000,000. This does not mean, as is often thought, that when an estate is more than $10,000,000 that 40 per cent. of the *entire estate* is taken, but only that 40 per cent. is levied on the amount over the $10,000,000. The lower rates apply to the brackets below this amount. Allowance is also made for inheritance taxes that may be levied by the states in the following provision of the law: "The tax imposed by this section shall be credited with the amount of any estate, inheritance, legacy or succession taxes actually paid to any state or territory or the District of Columbia, in respect of any property included in the gross estate. The credit allowed by this subdivision shall not exceed 25 per centum of the tax imposed by this section."

In order to check actual or possible evasion of the estate tax, a gift tax has been put upon the statute books. The rates, exemptions, and other provisions pertaining to gifts are identical with those which apply to estates. Any gift which has been received by the donor within a period of five years is not subject to the tax.

The inclination of the federal government to continue the use of the estate tax has been the target of much adverse criticism. The principal objections have been that the tax is not logically a federal tax since it is under state laws; that the holding and devolution of property is controlled; the revenue from the tax is no longer needed and the source should be reserved for use in future emergencies; the costs of administering estates is increased; a logical source of state revenues is curtailed by this usurpation of the federal government; and that the federal government has entered a field of taxation which has been developed by the states and should rightfully continue to belong to them. The gift tax has been especially criticized because of the impossibility of any satisfactory administration.

Corporation Tax.—A tax of 12½ per cent. is levied upon the net income of all corporations. Many corporations of a benevolent nature are exempt from the tax. An exemption of $2,000 is granted to a domestic corporation with a net income of $25,000 or less. No such exemption is allowed to a corporation with a net income of more than $25,000. When the net income is more than this, however, the tax is not to exceed what would have been payable if the $2,000 were allowed, plus the net income above $25,000. Corporations are also subject to an annual franchise tax paid in advance for the privilege of doing business in a corporate capacity. The rate is $1 for each $1,000 of the average value of the capital stock during the twelve months preceding July 1. An exemption of $5,000 is allowed to domestic corporations which does not apply to the capital stock of foreign corporations.

Stamp Taxes.—A number of stamp taxes continue to be used, chief among which are the following: bonds or certificates of indebtedness issued by any person and all corporate securities with interest coupons or in registered form, five cents on each $100 face value; on original issues of capital stock, five cents on each $100 par value; on sale of stock, two cents on each $100 face value; on conveyances of real estate, fifty cents on each $500 of the sale price; entry of goods at customs house, twenty-five cents to $1.00, depending upon value; sale of merchandise on exchange for future delivery, one cent on each $100; passage tickets sold in the United States to places other than this country, Canada, and Mexico, $1.00 to $5.00; proxies for election of officers or for business meetings of corporations, ten cents.

Tax on Admission to Amusements.—A tax is imposed upon admissions and dues. In general, the tax is 10 per cent. of the admission price, unless it be less than fifty cents, when no tax is charged. A tax of 10 per cent. is also levied upon the dues or membership fees in social or athletic clubs where the annual dues are more than $10. Initiation fees of such clubs are subject to a tax of the same amount if they are more than $10.

Excise and Occupational Taxes.—These taxes are levied upon the different forms of tobacco and an additional one upon tobacco manufacturers. These vary with size, weight, value, and annual sales. Other commodities which are subject to an excise tax are automobiles, tires, tubes, and accessories; cameras; cigar or cigarette holders; coin operated devices; firearms, shells, and cartridges; photographic films and plates; works of art; jewelry selling for more than a defined amount, boats (annual tax graduated according to length of boat). Levies ranging from $50 to $250 are made upon different classes of brokers; shooting galleries, pool halls, riding academies, are subject to a federal tax; while manufacturers and dispensers of liquors and narcotics must pay a license to the federal government.

Estimated Gross Receipts from Taxes.—For the year ending June 30, 1925, there were as follows:

Customs	$555,000,000
Individual income tax	670,000,000
Corporation income tax	850,000,000
Estate tax	100,000,000
Gift tax	1,750,000
Alcoholic spirits	26,000,000
Tobacco and tobacco manufactures	350,000,000
Admissions and dues	50,000,000
Automobiles, trucks, etc	130,000,000
Cameras and lenses	800,000
Photographic films and plates	900,000
Firearms, shells and cartridges	4,500,000
Smokers' articles	100,000
Coin-operated devices	250,000

Art works	$ 500,000
Jewelry, watches and clocks	12,000,000
Corporation capital stock tax	80,000,000
Stamp taxes	47,500,000
Oleomargarine	4,000,000

Possible Changes in Taxation.—As already indicated, there has been much dissatisfaction over parts of the revenue system. The Ways and Means Committee of the House, after a number of hearings have prepared recommendations to be submitted to the next session of Congress. Little opposition has appeared to the proposals and it is very likely that legislation closely in line with the recommendations will be adopted. It is calculated that the tax reduction from the changes will amount to about $300,000,000.

The Committee would raise the income tax exemption for single men from $1,000 to $1,500 and of married men from $2,500 to $3,500, and would decrease the normal rates to 1½ per cent. on the first $4,000 net income; 3 per cent. on the next $4,000; and 5 per cent. on the remainder. The maximum surtax rate is to be 20 per cent. and is to apply on all incomes above $100,000. The earned and unearned income features are to be continued with a 25 per cent. reduction for the former. The maximum for earned incomes is to be raised to $20,000. The giving up of many of the present excise taxes is also recommended since they are generally looked upon as nuisances. The abolishment of the publicity feature of the personal income tax is also recommended as is also the repeal of the gift tax.

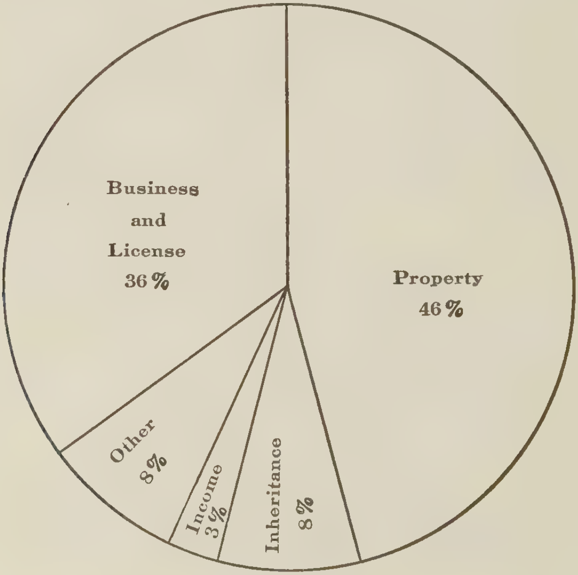
REVENUES OF STATES

By Merlin H. Hunter

Professor at University of Illinois

Distribution of Taxes.—That the states continue to place considerable reliance upon property as a basis for tax levy is indicated by the following graph, which shows the percentage of the revenue which states are deriving from the different tax bases.

Graph No. 3.—State Taxation



General Property Tax.—Little need be said as to the unsatisfactory conditions surrounding the use of the general property tax. These have been pointed out so often and broadcast so widely that they should be a part of the general knowledge. The discouraging aspect is that so little has been done to remedy the situation. In most states there is no semblance of uniformity in the assessment of any kind of property, while the notorious failure to assess personal property still continues. Many state constitutions still have the requirement that all property must be assessed at a just and uniform rate. In some states this requirement has been eliminated by constitutional amendment, in others, such attempts have failed, while in many cases attempts at change are still being made. The last session of the Illinois General Assembly authorized the submission of a constitutional amendment to the voters in November, 1926, which, if adopted, will give broad powers in making tax reform.

Some decided improvements exist in some states where the constitution is liberal enough to permit them. In New York, for example, evidences of secured indebtedness are no longer subject to the property tax but pay a fee upon registration. Very recently the state of Kansas has adopted a similar plan. New York has also ceased to use property taxes for state purposes which eliminates the inequality arising from apportioning a state tax among the smaller jurisdictions. The divorcement of the assessor from local politics and the centralization of authority have also been attended by satisfactory results where they have been introduced.

Business and License Taxes.—A number of items are included under business and license taxes. The most important business tax is that upon corporations, while the licenses include all sorts of payments from the fee for automobile registration to those legalizing numerous sorts of occupations. No accurate generalizations can be made as to the method of taxing corporations, for exactly the same plan is found in no two states. In most cases a fee of varying amounts is exacted for granting a corporate charter, but the real plan of taxation is in addition to this.

One method for taxing corporations which may be found in some form in a number of states is a levy upon the capital stock or upon the capital stock and bonds. In other states net earnings are made the basis of levy, while in some most reliance is placed upon gross earnings. In some an expert assessing body is given power to make a levy upon the value of the corporation as a "going concern" and power is given to them to take into consideration all the factors which will add to the value of the concern or which will subtract from it. None of these plans gives entirely satisfactory results or there would not be such a diversity of use among the states.

Special Corporation Taxes.—Many types of corporations are relieved from taxation under the general law and are subject to a method of taxation applicable only to the particular class. One of the first of these classes was banks because of the necessity of state taxing methods to conform to the requirements of the federal government in the taxation of national banks. The different forms of public service corporations are usually taxed under laws having a specific application to them and in general some form of an earnings or dividend tax is used. Many of these taxes have been justified because of their regulatory aspects but since the inauguration of regulation through the public service commissions this justification has lost the force it may have had. Manufacturing companies are frequently placed in a separate class for purposes of taxation, primarily with the idea of showing leniency in order to encourage development. Insurance companies, also, are not generally taxed under the general corporation tax law.

License Taxes.—A great variety of license taxes may be found among the various states. The purpose is either to secure revenue, to provide regulation, or both. The use of such taxes is much more extensive in the

Southern states than elsewhere, although their use has been increasing rapidly in other states in recent years. Any Southern state might be chosen to illustrate the extensive use made of license taxes upon business and occupations; the following is but a part of the requirements of the state of Georgia.

The annual license in the State of Georgia upon an adjustment bureau is $50 for each adjuster employed; advertising agencies, $50; collecting agency, in each county where branch is located, $200; teachers' agency, in each county where branch is located, $25; auctioneers, $50 to $200, depending on kind of goods sold; garages, $5 to $50, depending on size of city; automobiles operated for hire, $5 to $40, depending on size of city; automobile truck assembling plant, $300; tent maker, $15; billiard tables, each $50; barber school, $15; barber shop, $5 per chair, with a minimum of $10; agent for barber supplies, $50; brokers, $25 to $250, depending on nature of business; restaurants, $5 to $100; cemetery companies, $50.

A percentage of the cost is levied upon contractors and construction companies. Licenses are required of most retailers varying from $5 to $600, depending mostly upon the nature of the business, although the size of the city is sometimes considered; the tax upon laundries is from $25 to $100, depending on size of city; packing houses pay from $25 to $300, depending on population; peddlers, $50 in each county; skating rinks, $25 to $100; undertakers, $10 to $200, depending on population; warehouses, $25 to $200.

In addition to this partial list there is a large list of miscellaneous license requirements. These include a number of forms of amusements. The payment by a circus ranges from $100 to $500 a day, depending upon population; for each grand opera concert in a city of less than 100,000 population, $1,000; in larger cities, $2,500. Moving picture theatres pay from $250 to $1,250 a month.

Taxes on Automobiles and Gasoline.—One form of license payment which developed very rapidly and which is now found in every state is that upon automobiles. There is, however, no semblances of uniformity in making the levy or in the amount exacted. In the forty-eight states, at least seventeen different bases are used in determining the license. In the case of passenger cars, the horsepower basis is the one most frequently used, while for motor trucks it is rated carrying capacity. Other items used in arriving at the amount of the payment are gross weight of vehicle and load, weight of vehicle, cost, piston displacement, flat rate per vehicle, and total tire width. In some states more than one basis is used. In North Dakota, for example, the license charge is based upon four different factors—cost of the vehicle, weight of the unloaded vehicle, its horsepower, and its carrying capacity.

Such a diversity of computing license payments results in very unequal charges in the different states. In the case of a medium priced car the range is from $5 to $35, while for a five-ton truck it is from $5 to $300. There is, of course, no justification for such differences, and agitation has already arisen to secure greater uniformity in the charges levied by the states upon automobiles.

A form of tax the use of which has grown with phenomenal rapidity has been the one upon gasoline. The first use of such a tax was in February, 1919, in the state of Oregon and since that time about four-fifths of the states have adopted some form of a gasoline tax. The rates range from ¼ of 1 cent a gallon to 3 cents a gallon. The rapid growth in motor transportation with the demand for improved roads has been responsible for the adoption of the gasoline tax. It follows the principle that the building and maintenance of highways confer a special benefit upon the motorist for which he should make some direct payment. Since, in practically every case, the amount collected is placed in the highway fund, the gasoline tax appears to be just and equitable. There is a direct relation between the amount of gasoline used and weight of car, mileage, and speed, just as there is a direct relation between these factors and highway depreciation.

State Inheritance Taxes.—While inheritance taxes represent only about 8 per cent. of the tax burdens of the states, no other tax has been responsible for more injustice than has this form of revenue. From humble beginnings in Pennsylvania in 1826 the inheritance tax has grown until the principle is used in forty-five of the states. The tax is not found in Florida, Alabama, or Nevada. In Florida an amendment was recently added to the constitution forbidding the future use of inheritance taxes, while in Nevada the general assembly repealed the law which provided for such a tax. New York, on the other hand, added an estate tax to her already existing inheritance taxes.

The chief difficulty appears in the variety of choice of bases for levy in the different states. Some choose citizenship, others residence, physical location of property, location of securities, etc., until it is possible to have a levy of five or six different taxes upon the same bequest, and not at all uncommon to have two or three. With the increased rates of recent years, this multiple taxation has in many cases been intolerable and has been the target for much adverse criticism. Neither the suggestion that the federal government alone administer the tax and make allocations back to the states, nor that the states adopt uniform methods of taxation with some consideration of justice, has made much headway in accomplishing needed reforms, and state inheritance taxes still form one of the most discriminating and unjust parts of the revenue system of the states.

State Income Taxes.—The increased need for revenue, the failure of the property tax, and the successful use of the income tax by the federal government has caused a more favorable attitude to the income tax by the states. Since Wisconsin adopted the income tax in 1911, state after state has been added to the list until at present some form of income tax is found in the additional states of Delaware, Massachusetts, Mississippi, Missouri, New York, North Carolina, North Dakota, Oklahoma, South Carolina, and Virginia.

One of the hindrances to a more rapid development of state income taxes has been constitutional limitations. In only about one-fourth of the states is an income tax specifically sanctioned, while in a large number of the remainder an amendment to the constitution would be necessary before it could be adopted. This is being considered in some states, has been rejected in others, while the state of Florida recently adopted an amendment forbidding the use of income taxes. In a few states the constitutional provisions are so detailed and restrictive that a serious handicap is placed upon the formulation of a desirable and successful income tax. Because of constantly changing conditions, a constitution should do little more than authorize the use of the tax, and leave the details to be worked out by the members of the general assembly and the administrative officials.

Problems occur in the administration of state income taxes which do not occur in the use of the federal tax. One occurs in the basis upon which to make the levy, because of the possibility of causing unwarranted double taxation. The most logical methods of levy are upon incomes of residents of a state, upon incomes arising within the state, or upon a combination of these. Double taxation would not result in the use of either of the first two, yet the combination of the two is the plan usually adopted. The only reason that greater objection has not been raised is because a larger number of states do not use the tax.

The use of the expression "state income tax" is somewhat misleading in that it implies a method of securing revenue for state purposes. It would often be more accurate to say "state administered income tax" because in some states much of the receipts is distributed to counties and cities. In Wisconsin, for example, only 10 per cent. of the receipts is kept by the state, while in New York 50 per cent. is retained.

Appropriation of Income Taxes.—Many bases for the distribution of the receipts from the income tax have been suggested, and to do this satisfactorily, especially when only a small part is retained for state purposes, is one of the real problems of state income taxes. The bases most used are the amount of revenue received from the local district, the assessed valuation of property therein, or for some special purpose such as maintenance of education. The difficulty with the first is that incomes may arise in a district entirely different from the one from which the tax is paid. Individuals, for example, whose entire income arises from business conducted in Chicago or New York may live and pay income taxes in other cities or counties. Strictly residential districts, therefore, in an allocation on the basis of the amount of taxes received, will receive a relatively large amount. An allocation on the basis of the assessed valuation of real estate is more satisfactory, for real estate is found in most cases both at the place of business and at the place of residence. An evident advantage of this method is the incentive to place an accurate assessment upon property, because underassessment automatically lessens the receipts from the income tax.

Exemptions.—In Wisconsin an exemption of $800 is allowed to a single person and $1,200 to the head of a family and $200 is allowed for each dependent. The rates are progressive from 1 to 6 per cent, the latter rate applying to all incomes of more than $12,000. In New York the exemptions are $1,000 and $2,000, with $200 for each dependent. The rates are 1 per cent. on the first $10,000; 2 per cent. on amounts from $10,000 to $50,000; and 3 per cent. on amounts above $50,000. In South Carolina the rates are one-third those imposed by the federal government while the deductions and exemptions are the same.

Other Revenues. — States have many sources of revenue of minor importance. Reports of poll taxes are found in some twelve states, but other than in Massachusetts the returns are small. In this state a tax of $5 is levied for the purpose of paying a soldiers' bonus. Some receipts come also from fines, forfeits, escheats, subventions, special assessments, and donations but the total is not large. In some cases the returns from interest and rents is large, while the earnings of some of the departments is often not inconsiderable. This explains the fact that expenditures of some states are often much greater than the tax burden.

EXPENDITURES AND INDEBTEDNESS OF STATES

By Merlin H. Hunter
Professor at University of Illinois

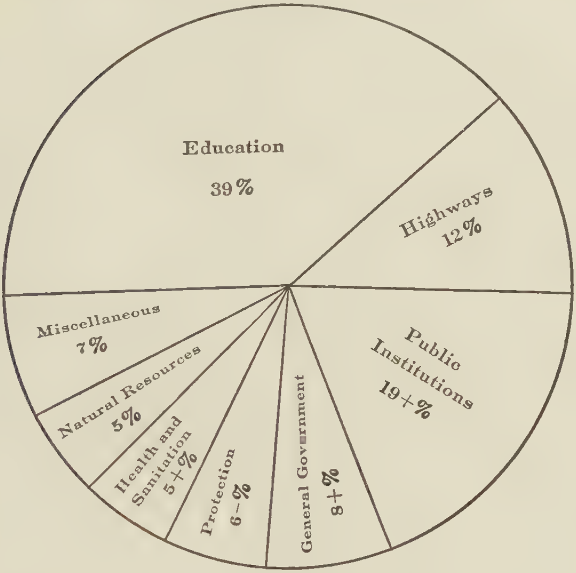
Distribution of Expenditure of States.—The expenditures of the forty-eight states is not a great deal more than $1,000,000,000; and the tax burden somewhat reduced by the earnings of the different departments is less than this. The relative distribution of the total expenditures for the more important items may be noted from glancing at the graph on the following page.

While this graph portrays the approximate distribution of state expenditures as a whole, some variations will occur for individual states. In about one-sixth of the states the item of expenditure first in importance is for the public institutions while in one or two states the expenditure for highways takes precedence.

Comparison of States.—Many interesting variations occur in both the total and per capita expenditures of individual states and in different parts of the United States. In general, the per capita expenditures of the Southern states is low for all the items in comparison to those of the other states. The Mountain and Pacific states show high per capita expenditures.

Some states may show an abnormally high expenditure for a particular item to which they are giving especial interest. This is illustrated by the high expenditures in some states for highways.

GRAPH NO. 4.—STATE OUTLAYS



Objects of State Expenditure.—The items included under expenditures for the general government are those for the legislatures, and the numerous offices under the executive and judicial branches. Under protection is included the expenditures for police, the fire marshal, militia and armories, fish and game warden, and the regulation of financial institutions, insurance companies, public service corporations and different forms of occupations. Under this is also included the many forms of inspection. Expenditures for the development and conservation of natural resources are for agricultural extension, experiment stations, reclamation, forestry, fish and game, and geological surveys. The principal items under health and sanitation are the prevention of communicable diseases, conservation of child life, food inspection, and the regulation of professional occupations.

The public institutions care for the dependents, defectives, and delinquents. Under the first item are placed the poor, the children, and the blind, deaf, and mute. The insane and feebleminded are the most important of the defective classes, while institutions for delinquents are divided into those for adults and those for minors. Expenditures for highways include such items as roads, bridges and waterways, while those for education cover the items of schools and libraries.

The total gross indebtedness of the forty-eight states is approximately $1,500,000,000 or about $13 per capita. Most of this is funded debt and the securities have been issued on the sinking fund basis. A deduction of the accumulated sinking fund assets would leave a net indebtedness of somewhat less than $1,000,000,000.

Following the agitation for reform in the administration of federal finances, nearly every state has made some change in its budgetary or administrative procedure. This has taken the form of centralizing responsibility, either in the governor, the manager of departments which have been created, or in especially selected committees from members of the general assembly. The result has been a marked improvement in the administration of the affairs of the states.

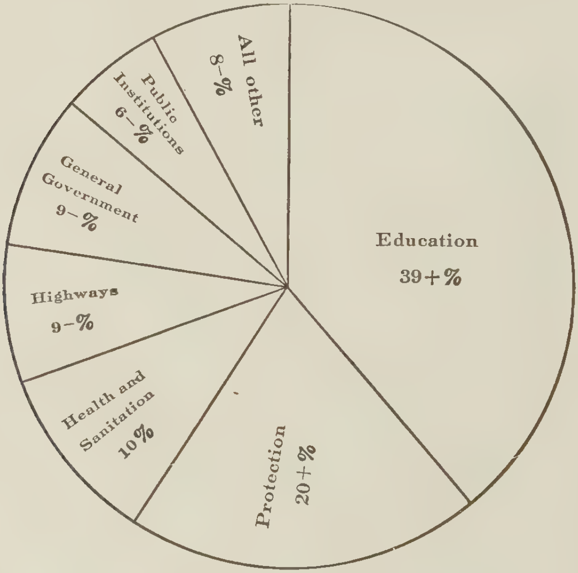
CITY FINANCE

By Merlin H. Hunter
Professor at University of Illinois

Distributive Expenditure.—The expenditures of cities are for much the same items as are those of the states, but the relative importance is somewhat different as a glance at the following graph will indicate. The total, however, is somewhat greater than that for the states, the annual expenditures for cities of more than 30,000 population being over one and a quarter billion dollars. The per capita expenditure is of course much greater than that of the states. The diagram below shows the distribution of municipal expenditures.

The greatest difference in emphasis between state and municipal expenditures is found in protection, health and sanitation, and public institutions. The large expenditures for police and fire departments in cities accounts for the large item for protection. The congested city population necessitates considerable attention to health and sanitation, while the states have assumed the responsibility, to a large extent, of taking care of individuals who must be kept in public institutions. It is interesting to note that in all items of municipal expenditure the per capita cost increases with an increase in population.

Graph No. 5.—City Outlays

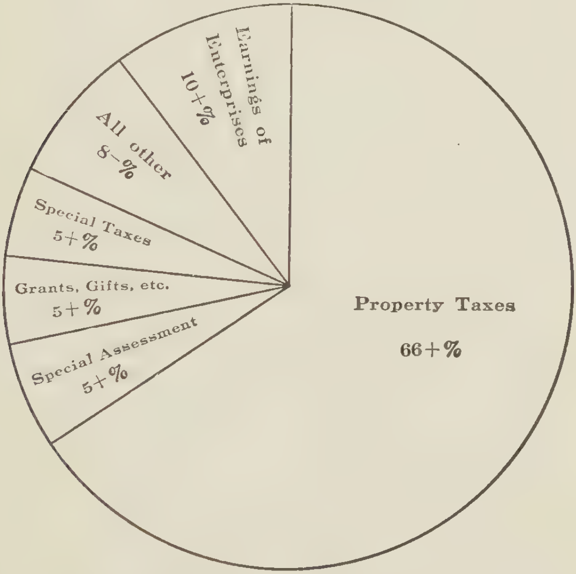


Taxation.—The reliance which cities place upon the taxation of property for revenue is indicated by the graph on page 317.

Many of the evils of the property tax already noted exist here, although in some instances decided improvements in assessment have been accomplished. These have been through the appointed assessor on the basis of merit and through eliminating the personal element to as great an extent as possible through the use of tax maps. The special assessment is especially adapted to cities and is used to finance street paving, lighting projects, and building sidewalks and sewers.

The principal items under special taxes are the amounts received by some cities from the allocated income tax, from the inheritance tax, and business taxes of one kind or another. Other sources of revenue are poll taxes, licenses, fines, donations, rents, interest, and receipts for highway privileges of one kind or another.

GRAPH No. 6.—CITY INCOME



Indebtedness and Administration.—The total indebtedness of all cities having a population of more than 30,000 is somewhat less than $6,000,000,000, a large part of which is funded. Since a large part of this is on the sinking-fund basis, assets have accumulated so that the net indebtedness is about $2,000,000,000 less than the figures for gross indebtedness would indicate.

The growth of municipal indebtedness assumed such alarming proportions that in many states there is a limitation placed upon the borrowing power of municipalities.

Commissioners and Managers.—Many cities have given up the council plan of government and have adopted the city commission or city manager plan. The idea has been to centralize responsibility and in many cases a marked improvement in the administration of the government has been the result. The introduction of a scientific budget and modern accounting practices in the municipality have also made for efficient and economical administration in many cities.

NATIONAL BUDGET SYSTEM

BY FREDERICK A. CLEVELAND
PROFESSOR AT BOSTON UNIVERSITY

Adoption of Budget.—Our National Budget was formally adopted June 10, 1921, after thirty years of educational work. Before 1890 the word "budget" had no place in the language of the American people. It gradually came into use—largely through the combined efforts of the National Municipal League and the New York Bureau of Municipal Research, as applied to local government; through such outstanding public men as Charles Evans Hughes, while Governor of New York, and President Roosevelt in discussion of State and National administration. "The budget idea" was popularized in a series of "drives" against "Invisible Government"—an opprobrious phrase coined by news-writers and finally adopted by Mr. Root and others associated with Mr. Roosevelt in his Cabinet to describe a condition calling for "institutional change" if not for "constitutional revision."

Origin of System.—As a specific device and procedure applied to the management of national affairs, the recently adopted budget system may be said to have had its origin in a series of descriptive and critical reports, and in the constructive proposals of the President's Commission on Economy and Efficiency (1910 to 1913). June 12, 1912, Mr. Taft sent to Congress, with his unqualified approval, a voluminous document dealing with this subject under the title "The Need for a National Budget." This contained not alone a statement of general conclusions but also drafts of forms and recommended procedure. In his special message transmitting to Congress this report Mr. Taft pointed to the specific clauses in the Constitution that gave to him the right to prepare and submit a budget. He recognized, however, that the subject in hand was one calling for a better working adjustment between two coördinate branches of the government—to one of which was given the exercise of executive power, to the other of which was given control over the purse, with the power to hold the executive to account and to decide questions of policy. The budget proposed by him was to be in the nature of an account of stewardship for audit, and a prospectus of future work or a plan of public service to be financed.

President Taft, therefore, urged coöperation. He urged a definite working arrangement adapted to carrying out these constitutional purposes, but the practical situation was this: a working majority in Congress, after the November election (1910), was opposed to the President; most of the executive "patronage" had been disposed of; and another presidential election was in the offing. Reception of Mr. Taft's significant proposal, therefore, was largely a matter of party strategy. And, by the opposition "board of strategy" in Congress Mr. Taft's budget recommendations were ignored.

Mr. Taft, however, did not accept this ominous silence in Congress as meaning defeat. Success, as he saw it, lay in an appeal to the public. His next move, therefore, was to make use of his independent constitutional powers. After waiting about two weeks, an executive order was issued to the heads of departments and offices, requiring them to send to him the information called for in the report according to forms prescribed; heads of bureaus and offices were instructed by the President to do this at the same time that they prepared their estimates as required by law. His "budget" data was to be sent to the White House; the Congressional "estimates" were to be sent to the Treasury on the old forms.

Conflict Between President and Congress.—This action by Mr. Taft was taken as a challenge. Congress was still sitting and continued to sit that year throughout the summer. The Sundry Civil appropriation bill had not yet been passed. This gave to the opposition majority in Congress their opportunity. They responded by inserting in the bill that carried the appropriations for the services at Washington a "rider"—the object of which was to make it unlawful for the heads of a department, bureau or office to comply with the President's demand.

An issue of authority was thus squarely raised; and it was just as squarely met. At the cross-road between the two opposing forces as organized under the Constitution was the Secretary of the Treasury. By

Congress, he, as their ministerial agent was charged with the performance of specific duties. And he was an official subordinate of the President. The Secretary asked the President for instructions. What was he to do about this seeming conflict? President Taft's reply was prompt and vigorous. He said that he saw no reason for doubt or hesitation. In a letter, Secretary McVeagh was told that the "rider" should be ignored—that it was *obiter dictum*—that both Congress and the President were acting within their constitutional right in asking for information. The letter concluded with the following positive instruction to the Secretary of the Treasury: "Print and send without delay to Congress all forms of estimates required by it of officers; also . . . have sent to me the information asked for. . . . This will be made the basis for review, revision and summary statement in the form of a budget with supporting documents which may be sent to Congress by special message as the proposal of the administration." And a copy of the letter was sent to each member of the Cabinet.

Executive Budget.—Delays were brought about, however, so that the President's budget was not ready when Congress convened as had been planned. Congressional Committees met early—before the December session. These committees made large demands on the bureau forces, and in November the election went against the President. Thus, with the prestige of the committees increased, it was made difficult for the executive staff in charge to get in all the returns. An executive budget was completed, however, in January. The summary statements and the President's budget message were made the subject of Cabinet conference and revision—were printed and sent to Congress. The only action of the House was to bury them in a committee. The Senate took no action except to order the budget and message printed and to order the cost of printing charged against the President's appropriation. But this action served a very useful purpose—it got the matter before the public.

The Budget Law.—Wilson came into office. The War followed with its absorbing confusion. But the appeal made to the common sense of the people by the Report on the need for a budget, and the publicity given to the stand taken by the President in reports and messages during the preceding three years, to the opposition of Congress and finally to the budget were so effective that within four years forty-six of the states passed legislation adopting a budget procedure; and in 1919 the two leading national parties were both pledged to a National Budget Law. In 1920, Mr. Harding was elected with a Republican majority in both Houses: and June 10, 1921, the law as it now stands in the statute book was passed.

As has been said: While Mr. Taft asserted his right to prepare and submit a budget, he recognized that the procedure must necessarily be a matter of agreement. He therefore recommended (1) that appropriate legislation be passed, (2) that a budget bureau be created, (3) that the several committees of Congress dealing with appropriations be consolidated. By the enactment of the budget law of June 10, 1921, the first two of these steps were taken; and changes in the rules of Congress followed, consolidating the committees. The law also provided for getting over from the old to new forms and procedure. The first year (1921) two sets of figures were to be prepared: one set was to be made up, as before, of estimates received from the several bureaus and offices without revision; a second set was to be prepared "in such form and amount and according to such system of classification and itemization as is, in his (the President's) opinion, most appropriate." This second or "alternative" form was then adopted by Congress as the form to be followed in years to come.

Bureau of the Budget.—Not alone was the form of the budget one of "executive" determination; but by statute the President was given the staff organization needed for successful operation. This statute set up a "Bureau of the Budget"; and it provided that it should operate "under such rules and regulations as the President may prescribe"—its duty being to "prepare for him (the President) the Budget, . . . make supplementary and deficiency estimates, and . . . have authority to assemble, correlate, revise, reduce or increase the estimates of the several departments and establishments."

As a matter of organization the budget law established three staff divisions, viz: (1) a division of estimates, (2) a division of investigations, (3) a division of law. In aid of the first, the old Bureau of Bookkeeping and Warrants was transferred from the treasury and provision was made for the detail of departmental representatives; in aid of the second, the bureau was given power "when directed by the President," to make a detailed study of the departments and establishments for the purpose of enabling the President to determine what changes should be made in: (1) the existing organization, activities, and methods of business of such departments or establishments, (2) the appropriations therefor, (3) the assignment of particular activities in services, (4) the regrouping of services. To deal with the subject of regrouping services, however, Congress was not content to leave this to the President. The same Congress appointed a joint committee on reorganization in which the executive was to have representation—the net result of which was that by party agreement, leadership was taken over by the President. And it is also to be observed that the United States Bureau of Efficiency (the successor to the Taft Economy and Efficiency Commission) was left intact as a collateral investigating and reporting staff agency and this has been availed of both by the President and Congress.

Along with this statutory provision for reorganization and budget-making went the appointing power of the President. This was important; for, in setting up the Bureau of the Budget, President Harding (without dictation or objection from the Senate), appointed as director a man of national reputation for honesty of purpose and independence; a man of extraordinary executive vigor and of wide business experience—General Charles G. Dawes.

Only a person of extraordinary ability, who had the full backing of the President and the confidence of the country, could have brought about the changes that followed within the next twelve months. What happened was that General Dawes, with his personal vigor, brought to the administration the force needed to impair, if not to break down, the inter-bureau and inter-departmental barriers which had come to stand in the way of coöperation between related services.

President's Control Strengthened.—The power of the President in the exercise of control of the various bureaus, offices and departments under his jurisdiction was strengthened. It was done in ways that were not contemplated in the budget act: (1) by organizing what is known as "The United States Business Organization"—a semi-annual meeting of the several hundred heads of bureaus, offices and divisions in Washington, these being extended also into district meetings in the large cities; and (2) by setting up in the Bureau of the Budget a staff agency that has come to be known as "the Coördinators." In Congress a similar reorganization took place. The many committees in each house having appropriations were consolidated by simply changing the rules. These changes operated to make more effective the powers of "the leader" and the "steering committee." The several "little legislations" were brought more directly under party control as this was developed through the "caucus."

Great questions of "policy" usually have to do with spending money or raising money, or both. Now the leader and his advisor, "the steering committee" may make effective the determinations of what we may well call our "legislative cabinet," by dealing through the chairman of the committee on "Appropriations" and the committee on "Ways and Means." Thus party policy as it may be affected both by legislation and administration has more completely passed out of the President's "Cabinet"; while the President and his Cabinet have been given more complete control over the routine of business that has already been established.

Leadership which has to do with matters of change or adjustment may be said to have more completely passed over to the "legislative cabinet," to the legislative "leader" who may be said to act with the advice and consent of the President—provided the President belongs to the same party. But because of the prestige of the President, he may always be used as a spokesman (and usually is) unless the leadership in Congress may have swung over to the other side.

DEBT OF THE UNITED STATES

By Francis H. Sisson
Vice-President, Guaranty Trust Company

The United States came out of the World War with a public debt which at its peak on August 31, 1919, stood at $25,700,000,000. This represented an increase in indebtedness after our entry into the war of $24,418,000,000, an increase greater than the total expenditures of the United States Government from its foundation in 1791 through the year 1913 — a period which included the extraordinary expenditures occasioned by the War of 1812, the Mexican War, the very expensive Civil War, the Spanish-American War, and the numerous Indian campaigns.

Reduction of Debt.—The United States, however, has been more fortunate than the Allied governments, which, in addition to huge internal debts, have emerged with tremendously increased external obligations. Furthermore, whereas the public debts of many of the Allied countries have been mounting since the armistice, this country has lost no time in reducing the amount of public indebtedness. By June 30, 1924, the public debt had been reduced to $21,251,000,000, a reduction of about $4,500,000,000. Approximately the same rate of reduction was maintained during the fiscal year 1924–25. On June 30, 1925, the gross public debt stood at $20,516,000,000, a reduction of about $5,000,000,000 within a period of six years.

More than 20 per cent. of this reduction has come from a decrease in the general fund balance. This does not represent a reduction in the net debt of the Government. The fact that the Treasury has been able to reduce its cash in bank by over $1,000,000,000 indicates, however, much greater economy of operation. About 33 per cent. of the reduction came from surplus, 28 per cent. from the sinking fund, and the balance from miscellaneous sources including foreign repayments.

In so far as debt retirement was effected by application of the sinking fund, and the principal of foreign repayments, the Treasury merely acted in accordance with the provisions contained in the Victory Liberty Loan Act of March 3, 1919, which created a sinking fund amounting to 2½ per cent. of the Liberty Bonds and Victory Notes outstanding on July 1, 1920, less an amount equal to the par amount of any obligations of foreign governments held by the United States. The practical effect of this sinking fund was to provide for the retirement within about 25 years of approximately one-half of the debt incurred by our own expenditures. The balance of the debt represented by the amounts lent to the Allies was to be taken care of by the repayments made by foreign borrowers. The Treasury is required to apply repayments of principal for this purpose but may use its discretion in regard to interest payments.

The application of the surplus to about 33 per cent. for debt retirement in the last six years represents the vast bulk of the reduction beyond the requirements of the law, and incidentally beyond the requirement of the twenty-five year program for debt retirement. It is true that more than a billion dollars of the surplus applied to debt reduction came not from a surplus of current revenues above current requirements, but from the liquidation of capital assets. This source of revenue, a heritage of the war, is now practically exhausted. Secretary Mellon, however, estimates that the surplus for the current fiscal year will still come close to $290,000,000. He estimates that for the fiscal year ending June, 1927, with revenue based upon the present tax program, the surplus would amount to between $250,000,000 and $300,000,000. He proposes to exhaust this surplus by means of tax reduction, particularly a reduction in the surtax of the income tax and the immediate reduction and ultimate abandonment of the estate taxes.

It has been proposed that our Government should not attempt to retire the national debt entirely at the expense of the taxpayers of the present generation but that retirement should be spread out over a period of 62 years, a figure undoubtedly suggested by the policy of our Debt Funding Commission in regard to the Allies' debts. In order to do this it would be necessary to change the debt-repayment provisions embodied in the Act of Congress, a thing which Congress has the legal authority to do. According to Mr. Mellon, however, "the government bond holder" has what amounts to "a contract morally binding on the United States, since to violate it would be partial repudiation, that the sinking fund will be continued in accordance with its terms, and that repayment of foreign loans will go to decrease the debt which was incurred in their creation." The traditional policy of the United States as well as the dictates of fiscal and economic expediency seems to indicate that the policy of retiring the national debt within a generation of the period in which it was contracted is a sound policy.

THE ALLIES' DEBTS TO THE UNITED STATES

By Francis H. Sisson

Vice-President, Guaranty Trust Company

From the time of our entry into the War until the armistice, the Government of the United States advanced to the Allied governments the sum of $7,078,000,000. Additional loans made after the armistice for relief and reconstruction purposes brought the total up to $9,466,000,000. The foreign debt, with interest accrued and unpaid, amounted to $12,018,000,000 on November 15, 1924. At the present time the aggregate of foreign indebtedness is about $12,085,000,000. Great progress has been made, however, in putting these debts upon a more stable basis. It may be helpful to review briefly events in relation to debt settlement.

Incurment of the Debts.—In his report for 1919, the Secretary of the Treasury stated that all interest which had become due on the obligations of foreign governments held by the United States had with relatively unimportant exceptions been paid. To a large extent, however, these interest payments had been made from the proceeds of loans made by the United States. The loans had been made under exceptional circumstances. The burdens of demobilization and reconstruction and the derangement of the exchanges called for exceptional policy on the part of the creditor country. The Secretary of the Treasury, therefore, announced that the cash payments of interest due during the next two or three years were to be deferred. They have been deferred ever since. At this time also the Treasury informed the treasuries of the European governments to which it had made advances that it was prepared, in case they so desired, to discuss with them the exchange of their demand notes held by the United States for their long-term obligations. Negotiations in regard to the funding of the debts were begun in Washington and continued in Europe during the fall of 1919 and spring of 1920 by Albert Rathbone, then Assistant Secretary of the Treasury. Nothing came of these negotiations. It developed furthermore that decisive action by the United States Treasury was not feasible without further Congressional authority.

Action of Foreign Debt Commission.—The first concrete step toward putting the debts upon a settled status was the appointment of the World War Foreign Debt Commission on April 11, 1922, in conformity with the Act of February 9 of the same year. At its first meeting, held on April 18, 1922, the Debt Commission passed a resolution stating "that the Secretary of State be requested to inform each of the governments whose obligations, arising out of the World War are held by the United States" that the commission desired to receive proposals toward the settlement or refunding of these obligations. In response to this invitation of our Government the governments of the Allied countries, with the exception of Russia, designated representatives to negotiate with our commission.

By November 15, 1924, Great Britain, Finland, and Hungary had funded their demand obligations to this country. Formal debt-funding agreements were reached with Lithuania on September 22, and with Poland on November 14, 1924. These settlements have since been finally approved. In the case of Lithuania the bonds have not yet been exchanged. The funded debt of these five countries amounts to more than 39 per cent. of the total foreign indebtedness. That of Great Britain alone accounts for 37 per cent. The last year has seen the funding of the Belgian and the Czechoslovakian debt, bringing the total of funded indebtedness in excess of 42 per cent. of the total foreign indebtedness.

The settlement with Belgium represents a major achievement, the Belgian debt being by far the largest after that of Great Britain, France, and Italy. The Czechoslovakian debt may be considered one of the minor obligations. The readiness, however, of the smaller countries to fund their debt improves considerably the morale of the situation and bodes well for the future. The vast bulk of the funded indebtedness is represented by Great Britain's debt of $4,554,000,000. The total obligations of foreign governments to the United States at the present time amount to about $12,085,000,000, of which $5,181,000,000 has been funded and $6,904,000,000 remains unfunded, as compared with the $4,794,000,000 funded and $7,269,000,000 unfunded on November 15, 1924.

Adjustment with Great Britain.—The settlement arrived at with Great Britain, for all practical purposes as early as February 3, 1923, was of great significance aside from the magnitude of the debt involved. The precedent set by the largest debtor, with the political and financial prestige that is possessed by Great Britain, effectively put a stop to talk of cancellation and what may be termed abbreviation of the debt, which had already been somewhat allayed by the Congressional mandate to fund the debt implied in the Act creating the Debt Funding Commission. This settlement established the policy of the United States dealing separately with the several debtor governments rather than being involved in a general debt conference with the European nations. One of the implied objectives of such a conference on the part of the debtor countries was undoubtedly an "all around" settlement which would have left the United States collecting its debt via the dubious road of German reparations. It was definitely established that German reparations and the Allies' debts to the United States were things apart. The acceptance of this point of view furthermore took the reparations problem out of the nebulous realm of international politico-financial speculation and made possible the constructive attitude which resulted in the Dawes plan.

Conditions of Settlement.—It was in the settlement of the British debt that the specific principles and terms were elaborated which have been adhered to, by and large, in the subsequent negotiations. All the settlements, with the exception of the Belgian agreement, involve the funding of the principal of the debt plus interest accrued and unpaid at date of settlement computed at 4¼ per cent. A cardinal principle of the funding arrangements is the debtor's ability to pay. In accordance with this criterion the liquidation of the funded debts is extended over a period of 62 years, the amortization payments being very small to begin with and increasing very gradually. In the case of Great Britain the annual installments on account of liquidation range from $23,000,000 in 1923 and 1924 to $175,000,000 annually for the last two installments in 1983 and 1984. The interest on the funded indebtedness outstanding is computed at 3 per cent. for the first 10 years and at 3½ per cent. for the remaining 52 years. The large majority of the demand obligations prior to funding bore an interest rate of 5 per cent. The vast bulk of the war obligations of the United States bear an interest rate of 4½ per cent.

Adjustment with Belgium.—The agreement reached with Belgium on August 18, 1925, differs from the others in that the interest on the principal of $171,000,000 borrowed prior to the armistice was cancelled. Moreover, this sum does not bear any interest during the period of liquidation of the debt. The principal sum of $171,000,000 only is to be repaid in 62 years.

The $175,000,000 borrowed since the armistice was funded in general on the same basis as in the other settlements. Interest accrued and unpaid, computed at 4¼ per cent., brought this sum up to $246,000,000. Because of the economic situation prevailing in Belgium, the fact that trade balances are against her and her exchange situation is unfavorable, it was provided that she should make arbitrary payments over a period of 10 years on the interest and that the 3½ per cent. charge would not apply until the expiration of this period. The total annual payments to be made range from $3,840,000 for the first year to $12,861,500 in 1986.

Adjustment with Czechoslovakia.—The significant aspect of this settlement is, of course, the remission of interest on the pre-armistice or strictly war loans. Although Belgium's difficult fiscal and economic position undoubtedly had a great deal to do with this concession there seems to have been a special reason for this exception, which, the Administration states, should by no means be accepted as a precedent in connection with the other debts. It was agreed at the Peace Conference that in view of Germany's violation of Belgian neutrality, the German Government be substituted as a debtor in respect to the pre-armistice debts. President Wilson made a recommendation to Congress in February, 1921, that a settlement with Belgium be effected on this basis. Congress took no action. Nevertheless, the members of the Debt Commission believed that a moral obligation rested upon this country to abide by President Wilson's promise.

Arrangements for funding the Czechoslovakian debt to the United States were concluded on October 9, 1925. The settlement is on a basis of $115,000,000 to be liquidated over a period of 62 years. The Czechoslovakian Republic was not formed until after the war, and thus all of the advances made by this country come under the classification of post-armistice commercial and reconstruction loans. The interest rate to be paid, therefore, did not involve the matter of possible precedent due to the concession of interest in the Belgian settlement. The main point under consideration was a disagreement as to the actual amount owed to this country. The Treasury books placed the total as of May 15 at $117,679,000, of which $91,979,000 was the principal amount and $25,799,000 accrued interest. There have been frequent exchanges on the subject of the principal of the debt between officials of the two nations ever since 1922. The Czechoslovakians have recognized right along the $80,000,000 reconstruction loan. The accuracy of the $11,000,000 item arising from expenses incurred by the United States in the transportation of Czechoslovak troops from Siberia to their country in 1919 and 1920 has been questioned. In the final settlement on the basis of $15,000,000, this sum was pared down by a little more than $2,500,000.

Negotiations with France.—The principal of the French debt plus interest at 5 per cent., accrued and unpaid, makes the total obligations in excess of $4,210,000,000, as compared with the British debt, which was funded at $4,600,000,000, and at present amounts to $4,554,000,000. The French debt is by far the largest of the unsettled debts, constituting more than 61 per cent. of the unfunded obligations. For this reason the recent negotiations with France are perhaps of greater importance than the settlements achieved during the last year, or, in fact, since the funding of the British debt.

The negotiations carried on in this country during the last week in September, 1925, between our Debt Funding Commission and the French commission, headed by M. Caillaux, did not arrive at an agreement in regard to the permanent settlement of the debt. M. Caillaux carried back with him to France the American proposal for what may be termed a five-year partial moratorium, under the terms of which France would be called upon to pay $40,000,000, representing a rate of 1 per cent. on her debt, annually, for the next five years, these payments to be regarded as the only interest due during this period. This tentative arrangement has since been rejected but the negotiations have not been broken off and a resumption of the debt discussion is expected in the near future.

Interest and Principal.—The recent negotiations will undoubtedly serve as the background, if not the foundation, for future discussion. Such discussion will best be understood in terms of the points of view, principles and emphasis on the facts brought out in the recent conference. The first French offer was to pay $25,000,000 annually for the first five years, $30,000,000 annually for the following ten, and $90,000,000 annually for forty-two years, these payments to extinguish the debt. The American Debt Funding Commission, in accordance with the principles emphatically enunciated in the previous debt settlements, made a sharp distinction between principal and interest and based its proposal on the requirement that the principal was to be repaid in full. The American point of view is that this attitude is absolutely necessary in order to maintain the sanctity of international economic obligations. The Americans agreed, however, to cancel $200,000,000 of past interest so as to bring the total debt down to $4,025,000,000.

Proposals and Counter Proposals.—An attempt was made to formulate the repayment of the principal and the payment of interest in accordance with France's ability to pay. Our Commission proposed that the French should begin by paying $20,000,000 a year on account of principal and increase the sum gradually. As to interest, the American proposal was that the French should pay one-half of 1 per cent. the first year and increase this rate one-fourth of 1 per cent. each year until the thirteenth year. By that time the rate would be brought up to 3½ per cent., which was to be the rate for the remaining years. It will be noted that while not embodying as great concessions as the Belgian debt settlement this proposal was much more lenient than the settlement with Great Britain.

The French commission then advanced a second proposal, under the terms of which France was to pay $40,000,000 annually for the first five years, $60,000,000 for the following seven years, and $100,000,000 for the next 56 years, thus spreading the payments out over 68 years.

Secretary Mellon presented a lucid statement which pointed out why the second French proposal was inadequate. The present value of the annuities contained in the French proposal, capitalized on the basis of 4½ per cent., is only $1,750,000,000 as against an adjusted debt of $4,025,000,000. By way of comparing the French proposal with the tentative Caillaux-Churchill agreement on the Franco-British debt which was presumably satisfactory to France, Secretary Mellon also pointed out that when the French debt to the United States was separated into its categories a settlement with the United States on the same basis would call for much larger payments than the French were offering: namely, $161,000,000 for the first twenty years and $61,000,000 annually thereafter until final payment.

Relations of Reparations.—Aside from the disparity in terms of figures, there was another fundamental issue which militated against an agreement satisfactory to both parties. The ghost of reparation, which it was believed had been finally laid as far as Allied debts were concerned, again appeared on the scene. The French commission at first desired the French payments to the United States to be contingent on reparation payments. Caillaux finally agreed to omit specific mention of German reparations but insisted upon a "safe-guarding" clause which would provide for just such a contingency. The position of our Debt Commission was that a settlement containing such a clause would not be a definite settlement but a contingent one. They pointed out that in case for some reason it should become unfeasible for France to continue making payments, representation could be made to that effect at the time, and that no "safe-guarding" clause was necessary.

In view of the difficult financial situation in which the French Government is involved it may be that our Government will find it necessary to make still greater concessions on the score of interest. The categories of pre-armistice and post-armistice loans may even be invoked to this end. The manner of repayment of principal may be adapted still more to the requirements of the situation. It is doubtful, however, whether this country will accede to the curtailment of the principal of the debt or to a "safe-guarding" clause which either specifically or by implication makes debt payment contingent upon reparation payments by Germany.

Capacity to Pay.—Regardless of the official attitude of the United States on the subject of divorcing the reparations from the Allies' debts,
it must be recognized that the fu
filment of the Dawes plan touch
upon a cardinal principal of our ow
policy, the Allies' capacity to pa
Practically considered, the Germa
reparations are the keystone of t
arch of international indebtednes
The nominal value of the Germa
reparation debt capitalized on t
basis of the British debt settleme
is estimated by the National Indu
trial Conference Board at about $1
500,000,000. France, Italy and Be
gium are designated as the recipien
of 92 per cent. of the reparation pa
ments. It is also well to rememb
that aside from the matter of Ge
man reparations, the Allies' debts
us are part of the general proble
of inter-Allied indebtedness, which
the aggregate amounts to more tha
$23,000,000,000. As a matter of pra
tical policy, however, it seems th
our Government must, for the tim
being, proceed on the assumption th
the Dawes plan will yield reparatio
payments as per schedule and th
the inter-governmental debts in so fa
as they do not directly involve th
country are no concern of our
There is, moreover, implicit faith
our Government's conception of capa
ity to pay on the assumption that t
European countries will impro
their fiscal and economic positio
with sufficient rapidity to enable the
to meet the gradually increasing a
nual payment stipulated in the fun
ing agreements.

Relation of Private Loans.—As fa
as the European countries are co
cerned their immediate need is fo
capital. This country has become th
only source for large amounts
capital in the world. For all pra
tical purposes debt funding has b
come a prerequisite to the negotia
tion of a large loan in this countr
It is very probable that most of th
debtor countries whose obligation
still remain unfunded will find
desirable to forego possible adva
tages in the uncertain future in orde
to meet the demands of immediat
fiscal and economic necessity.

Relation to International Trade.—
The European investments at presen
held by the people of this countr
plus the obligations of European go

ernments held by our Government total in excess of $20,000,000,000. If the debts remaining unfunded should be funded on the basis of the British settlement, an annual interest payment of approximately $1,000,000,000 by Europe to this country would result. This would be curtailed somewhat by foreign holdings of American securities but we should still be in the anomolous position of a great creditor country with a large balance of trade in our favor. Since debts and interest on debts can ultimately be paid only in goods and services it is claimed that if we persist in collecting our debts the export balance must go, either through a decrease of exports or an increase of imports, or both. Although, let us say, $500,000,000 amounts to only about 9 per cent. of our total merchandise exports and about 5 per cent. of our total foreign trade, it is the shifting of our trade as between the commodities that compose our imports and exports that would create the immediate difficulties and conflicts. The fact that the relative change in the trade situation is bound to be a matter of slow readjustment mitigates the economic aspect of the matter considerably. In the meantime, we may for a number of years continue to maintain an excess of exports and still receive interest and debt payments by continued investment in European securities. What we lose as producers we may thus gain as investors. The national income need not dwindle. The readjustment ultimately is between the economic groups in the debtor and creditor countries.

Relation to Currencies and Exchange.—The problem of the actual making of debt payments is considered by many a far more immediate and graver obstacle than the problem of their economic incidence. It so happens that the currencies of France, Italy and Belgium are still in an unstable condition. The budgetary situation, in France particularly, at the close of 1925 is such as to threaten inflation. There are those who are afraid of the vicious circle of debt payment, demand for dollar exchange, depreciation of the currency, aggravation of budgetary difficulties, inflation to cover budgetary deficits, still greater depreciation of the currency and so on: the succession of episodes has been dramatically displayed in Germany. The gravity of the transfer problem, particularly where large amounts are involved and the government has to bid for dollar exchange against industry which is suffering an adverse balance of trade is not to be denied. The master stroke of the Dawes plan was the provision for taking care of the matter of transfers. The reparations are considered paid when they are deposited in the Central Bank of Germany. It is then up to the transfer agent to see that the payments are effected so as to cause a minimum of disturbance to the exchanges. The amounts involved in the respective debt payments are not so large as in the case of German reparations. With the funding of debts will also come an increased investment in European securities. These will serve to create dollar exchange for the debtor countries. In so far, however, as the debt payments and the sale of securities by the debtor countries may not sufficiently coincide it may be found advisable to institute some sort of transfer agency or to regulate the exchanges in some other way.

U. S. Public Debt and Payments on Allies' Debt.—As a result largely of war indebtedness the Federal per capita debt in this country increased from $11.96 in 1916 to $28.57 in 1913, $115.65 in 1918, and $240.09 in 1919. It has since been steadily decreasing, and stood at $188.59 in 1924. Almost one-half of the public debt had its origin in money lent to the Allies. About 57 per cent. of the present national debt is represented by the obligations of the Allied governments.

The Federal per capita tax in this country rose from $6.92 in 1913 to $48.27 in 1919. As a result of our Government's return to a peace-time basis of expenditure, the per capita tax has been declining steadily and was reduced to $29.12 for 1923. The per capita tax is, however, still more than three-fold that of the pre-war period.

A very large share of the tax burden has been due to expenditures in connection with the public debt. The debt service accounted for 29 per cent. of the total ordinary expenditure in 1921, 39 per cent. in 1922, 40 per cent. in 1923 and 41 per cent. in 1924. The bulk of this expenditure has been for interest on the public debt, which will not be directly affected by Mr. Mellon's program of slower debt retirement. Indirectly, this slower retirement will make for a slower reduction in the annual interest charges on the public debt.

The payments we may receive from the Allied countries are obviously intimately connected with the rate of tax reduction in the future. The total funded foreign debt afforded a revenue equal to 5 per cent. of the total Federal tax bill in the fiscal year 1924. If these payments ha been applied to a reduction of th Federal income tax, they would hav permitted a decrease of about 9 pe cent. in the amount raised. If al the foreign obligations were funde on approximately the same basis a the British debt, the United State would receive annually about $450,000,000 in principal and interes which could be applied in part t immediate tax reduction and in a smaller part to a retirement of th public debt, thus permitting a gradua tax reduction later. Although th relief to the American taxpayer woul be only somewhat under $2 per capit annually through a period of 62 year these payments would themselves ad mit of a 20 per cent. reduction i the amount at present raised by th income tax.

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Professor at Massachusetts Institute of Technology

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THE UNITED STATES BUDGET FOR 1925-26

PREPARED BY DIRECTOR-GENERAL HERBERT M. LORD

for the fiscal year 1925-26, and submitted to Congress by President Coolidge December 7, 1925.

AND

COMPARATIVE SUMMARY OF RECEIPTS AND EXPENDITURES

	Estimated, 1927	Estimated 1926	Actual, 1925	Estimated, 1925	Actual, 1924
Total receipts	$3,824,530,203	$3,880,716,942	$3,780,148,684	$3,601,968,297	$4,012,044,701
Total expenditures	3,494,222,308	3,618,675,186	3,529,643,446	3,534,083,808	3,506,677,715
Surplus	$ 330,307,894	$ 262,041,756	$ 250,505,238	$ 67,884,489	$ 505,366,986

Note—The figures are exclusive of postal revenues and postal expenditures paid from postal revenues and the expenditures include reduction of the public debt required to be made from ordinary receipts.

ESTIMATES OF APPROPRIATIONS FOR 1926-27 COMPARED WITH 1925-26

Estimates of appropriations for the fiscal year ending June 30, 1927, compared with appropriations for fiscal year 1925-26, are as follows, cents omitted:

	Estimates of Appropriations, 1927	Appropriations, 1926	Appropriations, 1925
Legislative establishment	$ 16,498,381	$ 14,915,001	$ 14,279,816
Executive office	441,960	489,960	441,367
Independent offices: Civil Service Commission	1,001,592	1,008,092	1,012,035
Employees' Compensation Commission	2,742,040	2,301,500	2,650,600
Federal Board for Vocational Education	8,210,620	8,227,000	7,324,000
Federal Trade Commission	997,000	1,008,000	1,010,000
General Accounting Office	3,714,400	3,701,960	3,799,852
Housing Corporation	674,398	743,915	882,415
Interstate Commerce Commission	6,033,309	6,853,962	4,641,864
Public Buildings and Public Parks	2,293,850	2,282,505	2,433,115
Tariff Commission	699,000	721,500	683,240
Shipping Board and Emergency Fleet Corporation	14,198,574	24,330,000	30,344,000
Smithsonian Institution and National Museum	858,240	874,020	869,101
United States Veterans' Bureau	458,965,000	405,700,000	484,957,898
Other independent offices	4,879,876	1,578,045	1,807,186
Total, Executive Office and Independent offices	$ 505,709,859	$ 459,820,459	$ 557,146,489
Department of Agriculture	$ 140,717,758	$ 138,075,191	$ 78,047,186
Department of Commerce	30,402,847	28,542,129	25,847,555
Department of the Interior	250,967,602	262,255,603	294,319,163
Department of Justice	24,367,027	24,205,822	22,629,616
Department of Labor	8,567,305	8,627,625	8,676,346
Navy Department	322,869,430	302,862,378	277,707,257
State Department	16,614,932	16,277,652	15,764,756
Treasury Department	157,563,713	153,708,404	180,658,100
War Department, including Panama Canal	335,641,525	339,765,931	347,153,594
District of Columbia	35,626,579	36,032,853	30,354,115
Total, ordinary	$1,845,546,960	$1,785,089,050	$1,838,294,181
Reduction in principal of the public debt:			
Sinking Fund	$ 339,423,648	$ 325,304,445	$ 310,000,000
Redemption of securities from Federal Reserve Bank, etc	1,000,000	1,000,000	1,460,800
Redemption of bonds, etc., received as payments on obligations of foreign governments	175,159,750	174,124,150	160,345,601
Principal of the public debt	$ 515,583,398	$ 500,428,595	$ 471,806,401
Interest on the public debt	795,000,000	820,000,000	865,000,000
Total payable from the Treasury	$3,156,130,358	$3,105,517,645	$3,175,100,582
Post Office Dept. & Postal Service, payable from postal rev.	740,077,563	636,269,415	613,645,195
Total, including Post Office Dept. and Postal Service	$3,896,207,921	$3,741,787,060	$3,788,745,778

REVENUES AND EXPENDITURES OF TH

PREPARED BY THE UNITE

AVERAGE STATISTICS OF THE STAT

State	Assessed Valuation of Property Subject to General Property Taxes	Revenues				
		All Revenue Receipts		General and Special Property Taxes	Earnings of Public Service Enterprises	All Other Revenue
		Total	Per Capita			
Alabama	$ 956,689,244	$ 16,724,317	$ 6.92	$ 6,622,868	......	$ 10,101,4
Arizona	733,994,556	7,706,674	20.59	3,874,352	......	3,832,3
Arkansas	589,751,692	8,201,464	4.54	5,189,906	......	3,011,5
California	....	62,111,637	16.56	7,974,791	$2,780,053	51,356,7
Colorado	1,543,211,892	15,073,975	15.24	7,113,300	......	7,960,6
Connecticut	2,018,526,714	23,639,253	16.16	4,309,793	220,823	19,108,6
Delaware	228,851,876	6,527,384	28.32	2,458,247	......	4,069,1
Florida	445,103,181	12,097,549	11.56	6,208,355	......	5,889,1
Georgia	1,190,920,539	18,905,874	6.30	5,849,836	......	13,056,0
Idaho	481,479,695	6,799,465	14.55	2,810,965	......	3,988,5
Illinois	4,000,497,373	53,440,997	7.92	21,512,378	42,333	31,886,2
Indiana	5,281,804,728	30,943,299	10.29	14,135,669	......	16,807,6
Iowa	1,766,329,861	32,000,300	13.01	11,414,311	......	20,585,9
Kansas	3,557,172,141	13,291,587	7.41	7,562,769	327,936	5,400,
Kentucky	2,448,453,936	22,211,326	9.04	8,794,750	......	13,416,57
Louisiana	1,600,657,984	19,282,596	10.42	7,401,455	58,196	11,822,9
Maine	672,767,742	14,161,869	18.25	4,592,960	78,354	9,490,5
Maryland	1,782,212,084	20,026,244	13.34	5,783,242	117,267	14,125,7
Massachusetts	5,971,195,782	52,019,008	12.93	18,669,848	321,587	33,027,5
Michigan	5,929,615,241	57,072,940	14.51	31,362,134	......	25,710,8
Minnesota	2,353,527,264	41,848,338	16.85	9,057,053	......	32,791,28
Mississippi	702,338,410	10,784,711	6.02	5,738,589	......	5,046,1
Missouri	4,591,215,420	30,238,128	8.78	7,388,793	......	22,849,3
Montana	465,200,278	6,965,196	11.42	2,148,762	......	4,816,43
Nebraska	3,202,705,714	13,615,868	10.21	8,388,498	......	5,227,37
Nevada	199,053,936	4,172,665	53.91	1,360,142	......	2,812,52
New Hampshire	624,223,494	6,334,623	14.17	2,619,533	......	3,715,0
New Jersey	4,385,064,662	48,633,471	14.53	27,333,413	215,007	21,085,05
New Mexico	313,065,243	5,642,848	15.17	1,696,360	......	3,946,4
New York	15,390,398,973	144,018,396	13.36	31,417,433	......	112,600,96
North Carolina	....	22,158,565	8.26	1,115,213	9,842	21,033,51
North Dakota	1,308,315,404	16,067,143	24.04	4,842,218	5,223,556	6,001,36
Ohio	10,918,868,619	56,279,149	9.28	19,443,059	255,106	36,580,98
Oklahoma	1,671,753,031	18,029,725	8.41	1,533,044	......	16,496,6
Oregon	1,009,499,160	17,485,037	21.31	7,614,592	15,902	9,854,54
Pennsylvania	....	92,869,816	10.28	27,279,609	......	65,572,20
Rhode Island	1,089,921,310	6,870,971	10.97	3,410,817	20,175	3,439,97
South Carolina	424,015,714	9,909,431	5.68	3,579,890	......	6,329,5
South Dakota	1,977,127,560	11,996,899	18.38	3,519,871	......	8,477,02
Tennessee	1,730,828,183	16,304,396	6.84	6,340,635	12,038	9,951,7
Texas	3,469,386,643	48,190,252	9.81	25,410,587	......	22,779,66
Utah	646,710,475	9,149,598	19.22	4,599,136	......	4,550,46
Vermont	307,250,450	5,690,809	16.15	3,098,032	......	2,592,77
Virginia	1,908,082,825	27,835,743	11.64	7,113,697	......	20,722,0
Washington	1,126,367,118	29,471,020	20.63	16,682,732	......	12,788,28
West Virginia	2,092,556,969	14,380,216	9.35	4,170,952	......	10,209,2
Wisconsin	5,131,618,551	34,187,213	12.55	14,322,902	......	19,864,31
Wyoming	437,329,736	5,926,836	28.19	1,266,224	......	4,670,61
Total, United States	$108,675,661,403	$1,247,304,821	$11.38	$436,151,715	$9,698,175	$801,454,93

STATES, CLASSIFIED AND PER CAPITA.

States Census Bureau in 1925

GOVERNMENTS FOR THE YEAR 1923

Governmental-Cost Payments							Net Debt	
All Governmental-Cost Payments		Expenses and Interest		Expenses of Public Service Enterprises	Interest	Outlays	Total	Per Capita
Total	Per Capita	All Expenses and Interest	Expenses of General Depts.					
$ 19,927,439	$ 8.24	$ 13,603,381	$ 12,874,303	......	$ 729,078	$ 6,342,058	$ 16,846,058	$ 6.97
8,538,387	22.81	5,122,006	4,600,175	......	521,831	3,416,381	2,328,942	6.22
7,754,976	4.29	7,213,255	7,078,144	......	135,111	541,721	2,499,002	1.38
73,921,967	19.71	54,081,704	48,360,012	$ 2,111,484	3,610,208	19,840,263	81,462,169	21.72
16,414,903	16.60	10,223,504	9,784,767	......	438,737	6,191,399	10,734,867	10.85
21,172,846	14.47	17,713,471	16,984,499	72,107	656,865	3,459,375	5,095,658	3.48
7,386,267	32.05	5,179,662	4,898,251	......	281,411	2,206,605	6,635,155	28.79
12,729,166	12.17	7,278,299	7,257,536	......	20,763	5,450,867	1,065,410	1.02
17,765,483	5.92	12,456,435	12,210,008	......	246,427	5,309,048	6,900,702	2.30
6,351,921	13.59	3,986,896	3,599,831	......	387,065	2,365,025	5,304,320	11.35
66,974,311	9.93	36,977,904	36,341,082	27,539	609,283	29,996,407	24,756,118	3.67
29,621,168	9.85	21,196,921	21,107,900	......	89,021	8,424,247	1,545,615	.51
42,737,839	17.38	28,327,554	28,320,606	......	6,948	14,410,285	11,715,131	4.76
13,262,206	7,39	11,401,000	11,157,965	243,035	......	1,861,206	......	..
19,338,545	7.87	13,893,469	13,486,267	......	407,202	5,445,076	2,505,834	1.02
21,223,477	11.47	14,094,660	13,395,124	50,386	649,150	7,128,817	14,146,831	7.65
14,783,941	19.05	11,970,391	11,224,536	77,624	668,231	2,813,550	13,755,851	17.73
22,231,824	14.81	15,097,720	13,649,983	87,636	1,360,101	7,134,104	23,098,431	15.39
44,895,449	11.16	38,467,319	36,169,356	191,326	2,106,637	6,428,130	72,523,171	18.03
62,079,419	15.78	45,510,881	41,994,003	......	3,516,878	16,568,538	65,655,186	16.69
43,012,306	17.32	34,221,031	33,358,846	......	862,185	8,791,275	17,854,300	7.19
12,324,029	6.88	10,650,341	9,908,722	......	741,619	1,673,688	16,961,536	9.47
41,455,850	12.04	26,589,889	24,737,347	......	1,852,542	14,865,961	32,094,612	9.32
9,872,298	16.19	6,043,509	5,666,760	......	376,749	3,828,789	3,811,474	6.25
11,771,417	8.83	8,163,697	8,163,697	......	......	3,607,720	......	..
4,118,100	53.20	1,875,791	1,766,607	......	109,184	2,242,309	1,629,000	21.04
5,612,334	12.56	5,026,460	4,878,960	......	147,500	585,874	2,579,964	5.77
49,095,097	14.67	39,320,234	38,344,510	48,238	927,486	9,774,863	22,145,153	6.62
5,822,923	15.65	3,368,163	3,137,872	......	230,291	2,454,760	3,947,879	10.61
142,430,449	13.21	119,169,927	108,091,229	......	11,078,698	23,260,522	181,799,360	16.87
43,401,925	16.17	15,571,785	13,687,789	30,449	1,853,547	27,830,140	54,093,700	20.16
18,334,270	27.43	16,010,322	8,165,696	7,311,919	512,707	2,323,948	3,871,374	5.79
48,328,264	7.97	36,077,072	34,173,908	94,418	1,808,746	12,251,192	29,103,595	4.80
18,935,397	8.84	12,163,050	11,937,762	......	225,288	6,772,347	3,217,714	1.50
20,523,191	25.02	12,428,041	9,876,375	8,582	2,543,084	8,095,150	40,876,118	49.82
88,673,685	9.81	68,800,653	66,327,714	......	2,472,939	19,873,032	48,344,037	5.35
7,407,332	11.83	5,743,232	5,352,967	......	390,265	1,664,100	9,715,984	15.52
8,623,080	4.94	8,220,465	7,842,898	......	377,567	402,615	5,189,297	2.97
13,417,789	20.55	10,720,790	7,756,157	......	2,964,633	2,696,999	14,522,225	22.25
14,485,129	6.07	11,118,865	10,268,489	......	850,376	3,366,264	17,263,509	7.24
48,451,602	9.86	38,061,620	37,826,459	......	235,161	10,389,982	4,466,584	.91
8,744,914	18.37	6,981,799	6,507,103	......	474,696	1,763,115	8,710,331	18.29
5,624,777	15.96	4,737,315	4,644,782	......	92,533	887,462	2,049,532	5.82
28,475,659	11.90	21,416,366	20,686,510	......	729,856	7,059,293	20,007,547	8.36
25,034,084	17.53	19,155,271	18,391,114	......	764,157	5,878,813	10,553,187	7.39
19,571,101	12.72	11,121,016	10,047,638	......	1,073,378	8,450,085	26,773,014	17.40
31,873,451	11.70	26,525,123	26,373,664	......	151,459	5,348,328	2,063,700	.76
5,800,806	27.54	3,676,579	3,517,859	......	158,720	2,124,227	3,364,928	15.98
$1,310,332,793	$11.95	$965,754,838	$895,953,782	$10,354,743	$50,446,313	$353,577,955	$955,584,105	$ 8.72

DIVISION XII
TAXATION

TAX LEGISLATION

By William E. Hannan
Legislative Reference Librarian, New York State Library

Constitutional Proposals. — While this review of tax legislation is for the year 1925 it must, for proposed constitutional changes, take a backward as well as a forward look. For a period of three years, beginning November, 1924, and ending November, 1927, eighty-eight measures on the subject of taxation and state finance will have been before the voters of thirty-three states. Eighty-one of these measures are constitutional; and seven, initiative or referendum measures, not affecting the constitution.

Constitutional Amendments Passed upon in 1924.—The most important amendments, adopted in 1924, are as follows: California, Florida and Kansas approved a classified tax on certain intangibles. Florida added a new section to its constitution which provides that no tax upon inheritances or upon income of residents or citizens of the state shall be levied by the state. Minnesota authorized a gasoline tax. North Carolina limits the state debt to 7.5 per cent. of the assessed value of the taxable property of the state; and North Dakota increased its bond issue for state purposes from $200,000 to $2,000,000. Wisconsin provides a tax for the development of forests.

Of the amendments defeated, in 1924, the most important are as follows: California disapproved amendments exempting state, municipal, county and public-utility district bonds and federal aviation fields from taxation and one levying a 4 per cent. tax on the gross receipts of motor vehicle common carriers. Minnesota defeated a proposed forestation amendment. Mississippi voted down an amendment providing for a classified property tax and a tax on incomes and inheritances. Wyoming defeated a severance tax on certain minerals.

Certain initiative and referendum measures were also defeated November, 1924. Massachusetts voted down the bill levying a two cent tax on each gallon of gasoline, and Oregon approved the bill repealing the income tax law.

Constitutional Amendments Pending in 1925–1926.—Five states voted on twelve amendments in 1925. Maine adopted two relating to bond issues. New York approved three, two relating to bond issues totaling $400,000,000 for public improvements and elimination of grade crossings, and one concerning the reorganization of the state government. Ohio proposes two amendments: one, a classified tax on intangibles and the exemption of motor vehicles from the uniform rule; the other limits the borrowing power of local government units. Pennsylvania would regulate exemptions in the case of inheritance taxes, and would provide bond issues totaling $38,000,000 for public improvements and forest purposes.

Twenty-eight constitutional amendments will come before the voters of fourteen states for consideration in 1926. The most important of these amendments are as follows: California would levy a tax of 4¼ per cent. on the gross receipts of motor vehicle companies transporting persons and baggage, and a tax of 5 per cent. on companies transporting property by trucks; a second amendment would levy a tax of 5¼ per cent. upon the gross receipts of separately operated steam railroads of a certain length; forestation is to be encouraged by exempting from taxation all immature forest trees on certain lands. Illinois proposes the principle of the classified property tax. Indiana would provide an income tax. Minnesota seeks to encourage forestation. Oregon would follow Florida in its proposal to prohibit the levy of an inheritance and income tax.

Forty-two states held legislative sessions in 1925. The most important changes made in the various tax codes are noted under their proper subject headings.

State Tax Administration.—Connecticut placed emphasis upon the need of centralized control over local tax officials by increasing the powers of the state tax commissioner. Kansas abolished the state tax commission and the inheritance tax commission and created a public service commission of five members with the powers of the former commissions. Michigan, also, abolished the board of state tax commissioners and created a state tax department with the powers and duties of the former commission.

North Carolina consolidated the tax collecting forces. Taxes formerly collected by the secretary of state and the insurance department are transferred to the department of revenue. South Dakota enacted a new civil administrative law. A department of finance is created in which a taxation division is established. The state tax commission, in its present form, is abolished, and a director of taxation appointed. Washington abolished the department of taxation and examination and the state equalization committee, and established a state tax commission of three members with broad centralized powers.

Local Tax Administration.—Kansas created, for certain counties, a board for the approval of plats and maps of land for taxation purposes. Nebraska, for certain counties, authorized the county board to appoint a real estate classification board of three members to classify land outside cities and villages. The county assessor is to base his valuation and assessment upon the classification made by the board. New York provided, in towns over a certain population, for the appointment of one assessor and the creation of a board of review. Ohio abolished the office of township assessor, made the county a unit for taxation purposes, and named the county auditor the assessor.

Income Tax.—Nine states amended their income tax laws. Arizona repealed its gross income tax law. Massachusetts will tax the net income as returned to the federal government and also the business income of a deceased person. New York made a 25 per cent. rebate on the personal income tax. North Carolina made a substantial increase in the income tax rates. South Carolina exempts from income tax all income earned by domestic corporations from property and business owned and operated outside the state. Wisconsin increased the exemption allowed husband, wife, children under 18 years of age and dependents. This state, also, established a formula for apportioning income received by persons engaged in business within and without the state.

Inheritance Tax.—Eighteen states amended their inheritance tax laws. Four states, Connecticut, Massachusetts, New York and Pennsylvania, enacted provisions for reciprocity by which they agree not to tax the personal property of non-resident decedents if a like exemption is made in their favor. Georgia repealed its own inheritance tax law and provided for the collection of such a tax under the federal estate-tax act. Nevada repealed its inheritance tax law. Michigan increased the exemption for lineal descendants, and New Hampshire made a change in the rate of tax.

New York enacted an estate tax law which affects the net estates of resident decedents in excess of $1,000,000. The rates are graduated.

New York, also, in lieu of the progressive rates, laid a flat rate tax of 2 to 3 per cent. on the clear market value of the property of non-resident decedents. North Carolina increased the tax rates on all classes of beneficiaries. Pennsylvania adopted the 25 per cent. federal estate tax provision. Wisconsin provided that the inheritance tax shall not exceed 15 per cent. of the property transferred to any beneficiary. Wyoming made a complete revision of its law. The former progressive rates are changed to a flat rate basis.

Corporations. — Fourteen states amended their corporation tax laws. Nevada formerly based the filing fee on the whole amount of authorized capital stock, the new increased fees are based on the par value of stock authorized. New Mexico requires that the franchise tax be payable on the issued capital stock, formerly the authorized capital stock. Ohio provided for a levy of a franchise tax of 1/12 of 1 per cent. upon the fair value, on an asset basis, of the capital stock of domestic and foreign corporations. Rhode Island changed the flat-rate tax to a graduated rate.

Banks and Insurance Companies.— Eleven states made changes in the taxation of banks. Massachusetts will tax national banks and trust companies on their net income as returned to the federal government, at the same rate as that of other financial corporations. New Hampshire beginning in 1926 will levy an excise tax of 17/24 of 1 per cent. on savings deposits on which interest is paid; in 1931 and annually thereafter the rate will be 12/24 of 1 per cent. Pennsylvania repealed the 10 mills tax on bank stock. South Carolina provided that state and national banks shall be taxed alike.

Eight states effect changes in the taxation of insurance companies. Connecticut reduced the tax on mutual domestic insurance companies from 3½ to 3 per cent. The tax on domestic insurance companies is reduced in two particulars: the state franchise tax is reduced from 5 to 2 mills and the ad valorem stock tax from 10 to 4 mills. North Carolina increased the tax on certain insurance companies from ¼ of 1 per cent. to ¾ of 1 per cent. Wisconsin will tax unauthorized insurance companies on the same basis as authorized insurance companies.

Public Utilities.—Montana will levy a tax of 5 per cent. of the taxable value of the gross earnings of freight line companies. North Carolina provided for a privilege tax of 1 per cent. of the gross revenue of certain public utilities. The privilege tax on the gross earnings of chair and sleeping cars is increased from 3 to 4 per cent. The tax on express, telegraph and telephone companies is increased. Oregon levies an additional tax on all public utilities, based on gross revenue, and at a graduated rate. South Dakota requires express companies to pay a tax of 5 per cent. of the gross earnings, and power companies to be assessed and taxed at the local rates.

Motor Vehicles. — Twenty-seven states made substantial changes in the license fees on motor vehicles. California imposes a fee of 4 per cent. of the gross receipts of motor-vehicle common carriers. Connecticut lays an excise tax of 3 per cent. of the gross receipts of public motor busses. Florida increased the fee on all classes. Idaho requires a fee of 5 per cent., and North Carolina 6 per cent. of the gross earnings of auto transportation companies; there is, also, provided license fees based on age and weight of cars. Indiana reduced all license fees. Iowa bases the auto transportation tax on per ton mile and increases the tax; and Kansas and South Dakota levy an additional tax on like companies.

Massachusetts bases the fee on weight, and Michigan changes from a horse power and weight basis to a weight base alone. Massachusetts' fee is 50 cents and Michigan's 55 and 65 cents per 100 pounds weight. Minnesota levies a tax on the base value of trucks and, on passenger cars, a tax based on weight. Missouri, South Dakota, Oklahoma, Utah and Wyoming increased and Nevada, New Hampshire, Ohio and South Carolina decreased fees. Oregon divides auto transportation companies into six classes, the fee varying. Vermont changes the fees for trucks to a graduated rate based upon weight.

Gasoline Tax.—Every state but four, Illinois, Massachusetts, New Jersey and New York, levies a gasoline tax. Four states levy a tax of 1 cent a gallon; twenty states and the District of Columbia a tax of 2 cents; one state a tax of 2½ cents; eleven states a tax of 3 cents; three states a tax of 3½ cents; four states a tax of 4 cents, and one state, South Carolina, a tax of 5 cents. The trend is toward an increase in the gasoline tax rate. Seventeen states have made an increase in the rate of tax this year.

Assessment. — Nebraska provides for a quadrennial assessment of property, formerly biennial. Ohio requires the county auditor to assess real estate once every six years.

Forestry Tax.—Michigan provides for the establishment of commercial forest reserves and for their administration and taxation. New Hampshire encourages the planting and perpetuation of forests by providing for a rebate in taxes of 50 to 90 per cent. Ohio requires forest land, devoted exclusively to timber growing, to be taxed upon the actual value of the land, the value of the timber to be included.

PROPERTY TAXES

By Jens P. Jensen

Professor at University of Kansas

The Classified Property Tax.—While property taxes continue to yield the bulk of revenue for state and local treasuries, certain changes are taking place in the character of such taxes, of which the most conspicuous is the movement for the classification of property for differential taxation. The November election of 1924 modified the constitutional uniformity rule in Florida, Kansas, and California, so that in these states the legislatures may now classify all or some of the taxable property and tax the several classes differently. At the present time the legislative power to classify exists more or less completely in approximately three-fifths of the states. Though the movement for classification has not been very rapid there is no effective backward tendency, and in the states still subject to the uniformity rule more or less effort is exerted for its modification. Thus Ohio, the stronghold of uniform taxation, again submitted a proposal for classification to popular vote; and a similar proposal will be voted upon in Illinois in 1926.

Until recently the amendments permitted the classification of all property; but Maine (1913), New Mexico (1914), Nebraska (1920), Kansas (1925), and California (1925) have since limited the power to classify chiefly or entirely to intangible property. Under the Florida amendment, which apparently contains no restrictive provisions, no legislation has been enacted.

In Kansas the power to classify is limited to intangibles and "mineral products." The law enacted under the amendment did not extend to the latter type of property, but it established for intangibles the following taxes: for domestic real estate mortgages, a recording tax of 2.5 mills; for other intangibles, an annual property tax of 2.5 mills. Apparently through an oversight on the part of the legislature, manufacturers' and merchants' money and credits were not included, but remain subject to the general property tax rate (119 Kansas 1), the taxation of such money and credits being "otherwise provided for." For the same reason, and as decided in the same case, corporations holding domestic real-estate mortgages on which the recording tax has been paid may deduct the value of such mortgages in determining the value of their property.

In California the amended constitution provides that the legislature may in its discretion provide for a different method of valuation or a different tax on intangibles, provided that the tax on intangibles shall not be greater than the tax on other property; and provided that such a method, once established, cannot be changed except by a two-thirds legislative majority. Under the amendment it was enacted that intangibles generally be assessed at 7 per cent. of the market value and taxed at the local rate, as other property.

Nebraska, which state in 1921, under its 1920 amendment had established a classification similar in form to that of California, found it unsatisfactory and in 1925 established the following classification: money, in bank and elsewhere taxed annually at the rate of 2½ mills; other intangibles, generally, at the rate of 5 mills; bank stock to be assessed at 70 per cent. of the value of personal tangible property and subject to the local rate.

It cannot be said that, administratively, the new classified property taxes have been as effective as their advocates had hoped, that is, the amount of property listed for taxation does not so increase as to yield more revenue at the lower rate. In Kansas it is estimated that the amount of property subjected to the lower rate increased from 300 to 400 per cent. The best that can be claimed for the new law is that under it no owner of intangible property was made to pay confiscatory taxes. Besides, the amount of intangibles reached prior to the new law was so small, and the revenue from it so insignificant that no appreciable loss would have been sustained had intangibles been exempt entirely.

For the mediocre success—as compared with the experiences in Minnesota and elsewhere—several reasons can be given. Kansas has the most decentralized system of assessment in any state. The township trustees are ex officio the local assessors. They did not understand the law, which went into effect only a few days before the assessment day. To make matters worse, the tax commission had just been abolished, leaving no central authority, for the time being, in charge of the administration. To secure effective administration a process of education is necessary, not only of the assessors but also of the taxpayers.

Exemptions.—Pressure for exemptions is always exerted somewhere, and breaks out here and there. At the November election, 1924, Georgia voted to exempt the property of certain industries from all local ad valorem taxes for a period of five years after erection, for the purpose of encouragement. Included are especially the plants erected to manufacture or process cotton, wool, linen, silk, rubber, clay, wood, oil, and metallic or non-metallic mineral; milk or cheese plants; and plants to produce electricity. The exemption is subject to approval of a majority of the voters in the local district proposing the exemption.

Less extensive was the 1923 law of Wyoming which granted similar exemption to beet sugar plants for a period of ten years. It was repealed in 1925, which suggests that such exemptions are often passed by interested minorities in the absence of vigilance of the general body of taxpayers, whose interest must be to prevent the persistent "nibbling away" of the tax base.

New Jersey enacted a law to exempt all personal property stored in public warehouses. The law was passed over the veto of the governor, who in his veto message asserted that the policy of the state ought to be to deny exemptions except to "such property as shall clearly meet the test of giving to the general public an equivalent for the immunity from taxation."

On the other hand, Missouri in the November, 1924, election defeated a proposal to exempt the property of churches and educational and charitable institutions. Evidently the more effective claim for exemption at present is that which offers encouragement to the location and operation of industries.

Central Tax Administration.—What may prove to be significant changes are taking place in the character of the central state agency supervising and administering property taxes, and often other taxes as well. For several decades the evolution appears to have been in the direction of a standard central agency, in the form of a tax commission of, say, three members. In many instances such commissions have rendered signal service to the tax systems of their states. Somewhat later there has appeared the movement for governmental reorganization and a budget system, which in most cases conflicts with our earlier system of independent commissions and boards. How the tax commission and the budget system are to be reconciled is not yet evident, but more or less erratic adjustments are being made.

In South Dakota the tax commission was abolished and its duties assigned to a director of taxation under a secretary of the department of finance. This is a movement toward centralization, with no changes in the duties, however, except that power companies, following a recommendation of the tax commission, are to be centrally assessed by the director of taxation instead of by the local assessor. The object sought is not to interfere with the work of the central agency but to reorganize the form.

In Kansas the tax commission was abolished and its duties assigned to one of the five commissioners of the public service commission. The reason most strongly urged was that of economy in the use of engineers and accountants. A director of the budget was provided for, but no attempt was seriously made to reorganize the financial officers into a centralized department of finance. Whether the change was wise or not is perhaps uncertain, but it was certainly unwise to change the administration at the very moment when a new and hastily enacted intangible tax was to be administered by local assessors.

In the opposite direction was the substitution of a tax commission of three members in the state of Washington for the director of taxation and examination. A bill to abolish the Colorado tax commission and to substitute a "tax agent" failed to pass, and Colorado remains in the anomalous position of having two conflicting and probably irreconcilable fiscal boards, namely a constitutional ex officio board of equalization and a statutory tax commission, in which respect it is joined only by Missouri.

But few changes have taken place affecting the extent of the central tax agency. As mentioned above, in South Dakota the local assessors have been deprived of the task of assessing power companies. In that state also a gross earnings tax, to be administered by the director of taxation has replaced a property tax. Montana likewise adopted at the November election (1924) a gross proceeds tax on mines. The authority of the Montana state board of equalization to assess the property of a wholly intra-county mining company has been upheld against the contention that the constitution vested such power in the county assessor (229 Pac. 730). Also the power to assess omitted property was upheld against a similar contention (in the same case). In general the courts appear to favor the extension of the central assessment and control.

Assessment.—No important legislation has been enacted regarding the methods and principles of the process of assessment. It is necessary to mention merely a few judicial constructions of the proper factors in the valuation for taxation. Thus the assessors of Chicago must consider sales records as evidence of value of land, and cannot employ solely a mechanical or mathematical factor per foot of frontage when the presence of a Chinese settlement had in fact depreciated the value of the property (145 N.E. 600).

The "unit rule," whereby a railroad is valued as a whole and the aggregate value distributed on some basis among the states or local divisions through which it operates, was strengthened by being made applicable to a railroad system, the several parts of which are joined together by a terminal company whose stock is owned jointly by several railroads (264 S.W. 850).

A decision which may be very important to central assessment agencies and corporate taxpayers relates to the jurisdiction of the federal courts in cases of alleged discriminatory assessment. For years the federal courts would not assume jurisdiction. Lately, however, as in Sioux City Bridge Company vs. Dakota County, Nebraska, where intentional and systematic undervaluation was shown, relief has been granted under the Fourteenth Amendment of the U. S. federal Constitution. In denying relief in a case where the Supreme Court found no arbitrary and unconscionable difference between the assessments of the plaintiff and other taxpayers, Chief Justice Taft said: "This court must respect in the fullest degree the sensitiveness of Congress in hedging about the sovereign power of taxation in the states and precluding judicial interference with it, save in clear cases."

Collection.—There is evidence that the problem of collecting delinquent property taxes is receiving consideration although very few definite remedies are applied. Montana, upon recommendation of the state board of equalization, made personal property taxes a prior lien upon all real and personal property of the taxpayer. North Dakota, on the other hand, reduced the penalties on tax delinquency under the general property tax; and also reduced the maximum rate of interest on delinquent taxes from 12 to 9 per cent.

INCOME TAX

By Mabel Newcomer
Professor at Vassar College

Federal Tax.—No legislation has been passed to increase income taxes during the year, but there has been widespread and insistent demand for further reductions in such taxes. The last revision of the Federal Income Tax was the Revenue Act of June 2, 1924. Under this Act the rates of the normal tax are 2 per cent. on the first $4,000 of taxable income, 4 per cent. on the next $4,000 and 6 per cent. on all over $8,000. Surtaxes begin with a rate of 1 per cent. on net income in excess of $10,000, and reach a maximum of 40 per cent. on net income in excess of $500,000. A credit of 25 per cent. of the normal tax is allowed on earned net income under $10,000 and on all net income under $5,000. The personal exemptions are $1,000 for unmarried persons, $2,500 for a husband and wife and $1,500 more for dependents. The corporation income tax rate is 12½ per cent. with a credit of $2,000 for corporations having net incomes under $25,000. The provision of the 1924 Act for publicity of tax returns has aroused much opposition. The right of the newspapers to publish the returns thus made public was contested in the courts, but upheld by unanimous decision of the Supreme Court (U. S. v. Dickey, May 25, 1925).

Income Tax Revenue.—The yield of the federal income tax for the fiscal year 1924-25, the first year to be affected by the changes of the 1924 Revenue Act, was less than the yield for 1923-24. The decrease was in the corporation income tax, however. The personal income tax yield increased in spite of decreased rates. The receipts for the period from July 1 to December 1, 1925, are higher than for the corresponding period in 1924, being $500,000,000 as compared with $456,000,000 for the earlier period.

REVENUE FROM FEDERAL INCOME TAX
(In thousands)

Year	Corporation	Personal	All Income	Per Cent of All Federal Taxes from Income Tax
1924-25	$ 916,234	$845,426	$1,761,659	68.2
1923-24	1,137,797	703,962	1,841,759	65.9

Proposed Changes.—The income tax has continued to be an important political issue during the year. The two principal demands are for (1) a further reduction in the tax rates, especially on personal income, and (2) repeal of the publicity clause. There has been little agitation for taxation of tax exempt securities and there is no indication that Congress will take any action on this point. The recommendations of President Coolidge, Secretary Mellon, and the chairman and members of the Senate Finance and House Ways and Means Committees vary; but all favor reductions in both normal and surtax rates on personal incomes, and a further increase in personal exemptions. The tax bill of the House Ways and Means Committee (which was completed Nov. 23, 1925) provides for personal exemption for married persons of $3,500 and for single persons of $1,500; a normal rate on personal income of 1½ per cent. on the first $4,000 of taxable income, 3 per cent. on the next $4,000 and 5 per cent. on all over $8,000; a reduction of the surtax rates to a maximum of 20 per cent. on net income over $100,000, and an increase in the amount allowed as earned income from $10,000 to $20,000. It also provides for dropping the publicity clause. The estimated reduction in revenues from these changes is $194,000,000, of which more than half wil come from the surtax reductions.

State Income Taxes.—Nine states Massachusetts, Mississippi, Missouri New York, North Carolina, North Dakota, South Carolina, Virginia and Wisconsin, are taxing both personal and corporation net income. Three states, Delaware, New Hampshire and Oklahoma, are taxing personal, but not corporation, income. And two states, Connecticut and Montana, have taxes on corporation, but not on personal, net income.

All of these states excepting Delaware, Massachusetts, New Hampshire and North Dakota tax such income of non-residents as they can reach. New York, North Carolina and South Carolina, however, credit non-residents with the amount of any income tax paid in the state of residence if such state allows similar credits. All of these states but Mississippi and South Carolina tax residents on income derived from sources outside of the state, with only Missouri and North Carolina allowing credits for income taxes paid in other states.

Corporation Income Tax Rates are flat rates of 1 per cent. in Missouri and Montana, with an exemption of $2,500 in the latter state; 2 per cent. in Connecticut; 2½ per cent. in Massachusetts; 3 per cent. in North Carolina and North Dakota; 4⅙ per cent. in South Carolina, with

EXEMPTIONS

State	Personal Exemptions			Rates	Amount of Income to Which Highest Rate Applies
	Married Persons	Single Persons	Dependents		
Delaware	$2,000	$1,000	$200	1-3%	$ 10,000
Massachusetts	2,500 *	2,000	250	1½-6 †	......
Mississippi	2,000	1,000	200	1-5	25,000
Missouri	2,000	1,000	200	1	......
New Hampshire	200	200	...	2.49 ‡	......
New York	2,500	1,000	400	1-3	50,000
North Carolina	2,000	1,000	200	1-3	10,000
North Dakota	2,000	1,000	300	1-6	10,000
Oklahoma	4,000	3,000	200–500	¾-2	25,000
South Carolina	2,500	1,000	400	⅔-15-⅓ §	500,000
Virginia	2,000	1,000	400	1-2	3,000
Wisconsin	1,600	800	300	1-7	12,000

* Exemptions apply to earned income. There is a flat exemption of $300 on unearned income.

† Vary with source of income.

‡ Applies only to income from intangibles. Varies with average of general property tax on all tangible property in the state.

§ One-third of federal income tax rates.

an exemption of $2,000; and 4½ per cent in New York. Virginia has an initial rate of 1 per cent. rising to 2 per cent. on income over $3,000. Mississippi has a graduated rate of 1 to 5 per cent., the maximum being applied at $25,000, and an exemption of $1,000. Wisconsin has rates of 2 per cent. to 7 per cent., the highest rate being applied to all income over $7,000. All of these are taxes on net income, but net income is variously defined, and in some states the tax does not apply to all corporations.

Use of Proceeds.—In Delaware the greater part of the proceeds are credited to the state school fund. In Massachusetts the state retains the temporary additional tax and enough of the regular tax to cover the cost of administration. The remainder is distributed to the local districts. In New Hampshire, also, the proceeds over the cost of administration are turned over to the towns and cities. In New York half of the personal income tax and one-third of the corporation income tax are distributed to the local districts. In Wisconsin the surtax is used for special state expenditures, but only 40 per cent. of the normal tax is kept by the state. In the other states the proceeds are all kept for state purposes.

REVENUE FROM STATE TAXES ON NET INCOME

(In thousands)

State	Amount for State Purposes	Per Cent. of State Taxes	Amount for Local Purposes	Per Cent. of Local Taxes
Connecticut	$ 2,159 *	11.5	.....	...
Delaware	368 †	8.0	.....	...
Massachusetts ††	2,069 *	5.9	$15,500	9.0 ¶
Mississippi	29 †	.4	.....	...
Missouri	2,868 †	16.2	.....	...
Montana	149 ‡	3.9	.....	...
New Hampshire	5 §	.1	218	1.4
New York	35,462 ‖	23.0	34,010	7.0 ¶
North Carolina	3,691 †	28.9	.....	...
North Dakota	171 †	2.8	.....	...
Oklahoma	302 †	3.6	.....	...
South Carolina	2,063 †	25.2	.....	...
Wisconsin **	3,557 *	12.5	6,010	6.0 ¶

* 1924.

† 1923.

‡ Includes also gross receipts tax from express, freight line, and insurance companies, 1923.

§ Tax was on income for only a part of the year 1924.

‖ 1925. Total collections were $71,730,485 of which $33,761,442 was from personal income.

¶ Approximate.

** About one-third from personal income.

†† Less than half a million from corporation income.

Legislation and Court Decisions.—The governors of Colorado, Georgia, Iowa and Oregon recommended the adoption of income taxes in their annual messages this year. Both the Illinois and Indiana legislatures passed acts amending the state constitutions to make an income tax possible. Both of these acts are to be submitted to popular vote in November, 1926. No new income-tax laws have been enacted, however, since 1923. On the contrary there has been some reaction against such taxes. In November, 1924, Florida amended the state constitution to prohibit the levying of a tax on net personal incomes, Michigan rejected an amendment to tax incomes above $4,000 at rates of 4 per cent. to 10 per cent., and Oregon repealed the state income tax of 1923. In the last state a proposed amendment to prohibit state income taxes until the year 1940 will be submitted to popular vote in November, 1926.

Amendments to existing income tax laws were made in several states in 1925. In both Delaware and North Dakota minor amendments were made to facilitate administration. In New York a flat 25 per cent. reduction was made in the personal income tax paid in 1925. The Wisconsin legislature amended the law to increase exemptions for married persons from \$1,200 to \$1,600, and for dependents from \$200 to \$300; and to change the distribution of yield, increasing the state's share from 10 per cent. to 40 per cent., decreasing the county's share from 20 per cent. to 10 per cent. and decreasing the share of other local districts from 70 per cent. to 50 per cent.

The Arkansas tax of 1923 was declared unconstitutional by a decision of the Arkansas Supreme Court on January 19, 1925, as in the nature of an occupation tax rather than a privilege tax. This tax was one of 1/10 per cent. on gross personal income. In a later decision, May 4, the same court declared that a tax on net income would be considered as an excise and as such constitutional. The Mississippi income tax was upheld by the State Supreme Court in June, 1925, thereby reversing a decision of a lower court.

CORPORATION TAXES

BY JENS P. JENSEN
PROFESSOR AT UNIVERSITY OF KANSAS

Nature of Taxes.—Interest in corporation taxation manifests itself chiefly in the adjustment of franchise taxes. Corporate property is generally taxed in the same manner as other property under the general property tax, with the exception that property of corporations is often assessed by different methods. But in these specialized methods of corporate property taxation only minor changes are taking place. This may be shown by the fact that the substitution in South Dakota of a 5 per cent. gross earnings tax on express companies is probably the most elaborate change made during the year, in respect to the form of corporate property taxation. Likewise, the extension of the jurisdiction of the central state assessment body in South Dakota to include power companies is probably the most sweeping change in the method of assessment. Of a similar character, to mention only one more change, is the application, in the state of New York, of a 1 per cent. franchise tax on gross premiums to life and casualty insurance companies doing business on the assessment plan, whereby this class of business is placed on the same basis as insurance companies generally.

Taxation Powers.—Judicial constriction by the federal courts of the commerce clause in the Constitution and of the Fourteenth Amendment is slowly narrowing the power of the states to tax corporate franchises. Recent decisions of the Supreme Court particularly place the franchise tax on corporations doing solely an interstate business on an unsatisfactory basis; but they also affect the taxes on corporations engaged partly in interstate and those engaged solely in intrastate business. It cannot be said that the state courts are tending to remedy the conditions very fast.

Most significant is the decision in Alpha Portland Cement Co. v. Massachusetts, decided by the United States Supreme Court, May 4, 1925. That state imposed on a corporation doing solely an interstate business, an excise tax measured partly by the corporate excess situated in and partly by the income allocated to Massachusetts. All corporations doing business in the state were similarly taxed, no discrimination existing against interstate business. Yet it was held that such a tax was invalid on a corporation engaged solely in interstate commerce, the tax being a direct burden on interstate commerce which is invalid under the commerce clause. Had the corporation been engaged to any extent in intrastate commerce, the tax would presumably have been held valid unless shown, in fact, to burden interstate commerce.

In another case, Ozark Pipe Line Corporation v. Monier et al., decided by the same court, January 12, 1925, Missouri attempted to impose upon a corporation transporting oil from Oklahoma through Missouri into Illinois a franchise tax of one-tenth of 1 per cent. of the par value of that part of the corporation's shares which was represented by the property situated in Missouri. Though there was no discrimination, the tax was held invalid as being a direct burden on interstate commerce.

In both cases Justice Brandeis dissented. He saw no bar in the commerce clause to such taxes, which were intended to place the corporations in the same position with respect to their interstate business as with respect to the rest of their business. The presence or absence of intrastate or local business in any amount seemed to him to be a very irrational test of whether or not a corporation should be subject to a state corporate franchise tax. To people generally, the contention of Justice Brandeis is sound. Apparently the states face the necessity for a choice between abandoning corporate franchise taxes entirely, on the one hand, and discriminating in favor of corporations engaged solely in interstate commerce, on the other. What their choice will be is not indicated. At present there appears to be no third possibility.

Basis of Taxation.—A different, less difficult and less important question, whether the franchise tax can be based upon the *authorized* rather than the *issued* stock, has been decided negatively in the case of Air-Way Electric Appliance Corporation v. Day, decided by the Supreme Court, October 12, 1924. Ohio required a tax of three-twentieths of 1 per cent. of the fair value of the authorized stock to the extent that such stock was represented by property owned and by business done in the state. The court held that authorized stock had no necessary relation to the property or the business of the corporation whether interstate or intrastate, and could therefore not be used in computing the tax. This distinction does not appear to embody any very important principle, so long as the value and not the number of the shares authorized is used. Presumably the aggregate *value* of the *issued* and the *authorized* shares would be practically identical. In the Ohio case, however, the tax was a lump sum, five cents, per share. But the opinion indicates that *authorized* stock would not be allowed as the tax base, even though according to its value.

The Ohio legislature accordingly in 1925 substituted, as the tax base, the fair value of such proportion of the *issued* stock as is represented by property owned and by business done in the state. Similar adjustments were made by the legislatures of Utah and New Mexico. Montana, however, retained *authorized* stock as its tax base; and this law will probably be contested.

A still different question is presented where shares of stock of the corporations have no par value. In the Ohio case above the tax was fixed arbitrarily at five cents per share of no-par stock, while in case of other kinds of stock the value of the stock was to be the basis for a tax of three-twentieths of 1 per cent. The Supreme Court held that, while corporations might be classified and the different classes subjected to different taxes and methods, the classification employed had no relation to the purpose for which it was made; it would not tend to produce equality and was repugnant to both the commerce clause and the Fourteenth Amendment. An Illinois Supreme Court decision (144 N.E. 818), reversing a former decision (137 W. E. 202), upheld a tax based upon no-par shares arbitrarily valued at one hundred dollars each.

Except possibly where federal jurisdiction is involved, the status of no-par stock, as a tax base, is unsettled and constitutes a vexing problem, the presence of which reflects but little glory upon the lawmakers and the courts. The accepted magic of a par value for ordinary stock, no matter how fictitious that value may be, has done much harm, and neither the legislatures nor the courts have shown much sagacity in adapting no-par stock as a basis for taxation. In either case, fair value is the most rational basis, and it ought to be obtainable with practically equal facility in both cases.

Liability of Shareholders.—Still another problem remains largely unsolved, namely, the question of when shares of stock shall be taxable to the holders as property when the corporation has paid taxes on all or a part of its property. State laws and court decisions differ too widely on that point. While generally shares of domestic corporations are exempt, this is not generally so with shares of foreign corporations unless the corporation has paid taxes on a part of its property, which part varies widely from state to state. In an Oklahoma case (Board of County Commissioners Oklahoma County v. Ryan, Oklahoma Supreme Court), December 2, 1924, such exemption was accorded to shares of a corporation which had only 5 per cent. of its property taxable in the states. It would be desirable to have greater uniformity among the states in this respect.

INHERITANCE TAXES

BY ALZADA COMSTOCK

PROFESSOR AT MOUNT HOLYOKE COLLEGE

Federal.—The federal estate tax in force in 1925 was levied under the Revenue Act of 1924, which imposed the highest rates ever attempted in the United States, namely, a graduated series rising to 40 per cent. for that portion of net estates above $10,000,000. The maximum rate under the law of 1916 was 10 per cent. and under the laws of 1917 and 1918, 25 per cent. Under the Revenue Act of 1924 a credit was allowed for any state inheritance taxes which an estate might have paid, up to 25 per cent. of the total federal estate tax. By the terms of the same act the estate tax was supplemented by a gift tax applied to gifts between living persons to the extent that the total of the taxable gifts exceeded $50,000, the figure which also represented the exemption for estates.

Since the tax was imposed in 1916 the revenue which it has yielded has been as follows:

1917	$ 6,000,000
1918	47,000,000
1919	82,000,000
1920	104,000,000
1921	154,000,000
1922	139,000,000
1923	127,000,000
1924	103,000,000
1925	109,000,000

The figures show that the revenue was largest when the maximum rate was 25 per cent., instead of the 40 per cent. in force in 1925, and that the yield of the tax has decreased since 1921.

State Taxation.—The federal and state taxation of inheritances overlaps to some extent, although the federal law differs from most of the state laws in that it applies to the net estate, rather than to the distributive shares. In 1925, 46 states had estate or inheritance tax laws. In many of the states the revenue from taxation in this form was small, but in Rhode Island, Massachusetts, Pennsylvania, Connecticut, New York, California, and New Jersey it amounted to at least 10 per cent. of the total state revenue.

None of the states had rates which were as high as those of the federal government, but it was found that when the two rates were added it was possible for them under certain conditions to absorb almost all of a large estate. Added to this difficulty, there was the fact that the varying policies of the states offered an inducement to wealthy property-holders to establish their residences and invest their capital where taxation of this type would be lowest. Full recognition was given to this natural impulse when Florida, by a constitutional amendment adopted in 1924, provided that the state should never impose a tax on inheritances.

In the course of the year the opposition to the estate tax in general, and in particular to the high schedule of rates of the Revenue Act of 1924, gathered force and was formally expressed by several organizations of national importance. The National Tax Association called a conference on inheritance and estate taxation at Washington, D. C., on February 19 and 20, at which President Coolidge spoke. The President mentioned the fact that historically the Federal Government had entered the field of inheritance taxation only on the occasion of war emergency, and that in every case except the present it had withdrawn when the reason for exceptional taxation ceased. He also said that the view, recently expressed at meetings of the National Tax Association and at a conference of tax commissioners, that the Federal Government should withdraw from the field of estate taxation, had much to commend it.

The Conference adopted resolutions to the effect that the "present ill-balanced and illogical state and federal death-tax structure" should be so changed that a "rational tax system" should result, and to that end provided for the appointment of a committee of nine to study the subject and to formulate plans for improvement.

Bankers' Proposition.—In September, 1925, a Special Committee of the Trust Company Division of the American Bankers Association presented a report in which the abolition of the federal estate tax was recommended. The arguments against the tax were given in effect as follows: *first*, the tax is based on the right of succession and is therefore one which may logically be employed by the states but not by the federal government; *second*, the federal estate tax should be reserved for emergencies only, as in 1797-1802, 1862-1870, and 1898-1902; *third*, the federal estate tax is no longer needed as a source of revenue, as recent budget surpluses show; *fourth*, the abolition of the federal estate tax would increase inheritance-tax revenue in the states; and, *fifth*, the administrative burden on estates is heavier in the case of the federal estate tax than in the case of the state inheritance taxes.

Ways and Means Committee.—The committee of the House of Representatives began its work upon the tax bill in October. A number of state governors appeared before it, asking that the Federal Government should retire from the inheritance tax field and leave that source of revenue to the states. In case neither immediate repeal nor gradual abolition should prove practicable, they favored substituting full credit for inheritance taxes paid to the states for the 25 per cent. credit allowed under the Revenue Act of 1924.

National Tax Association Proposal.—In the course of the hearings the Ways and Means Committee received the report of the committee appointed as a result of the conference called by the National Tax Association in February. The report was presented by the chairman of the committee, Frederick A. Delano, and was subsequently known as the "Delano Report." The ten recommendations made were as follows:

1. Inheritance taxes should be substantially uniform throughout the United States.
2. Inheritance tax laws and rates should be stable.
3. Inheritance taxes should be moderate.
4. Legislation should be enacted during the next session of Congress providing for repeal of the Federal estate tax, to take effect six years from the date of the passage of the repealing act.
5. The rate structure of the present Federal estate tax should be immediately revised downward.
6. The credit provision of the present law should be extended to allow a credit of all inheritance taxes paid to the several States up to 80 per cent. of the Federal tax.
7. The gift tax should be abolished.
8. Substitution by the States of estate-tax laws for the succession-tax laws now generally employed by the states is desirable.
9. Multiple taxation of the same property by States should be abandoned.
10. Intangible property should be taxed only by the State of domicile of the decedent.

Secretary Mellon also recommended to the Ways and Means Committee the repeal of the federal estate tax. The reasons given were those frequently stated, including the argument that the right of succession is controlled by the states, the need of the states for revenue, the declining revenue from the federal tax, and the confused situation produced by the combination of federal and state taxes. At the same time the Secretary advocated the repeal of the gift tax.

Bill of Ways and Means Committee.—Contrary to the expectations of many, the repeal of the estate tax was not embodied in the bill which the Ways and Means Committee prepared for the opening of Congress in December. A majority of the Committee was evidently unconvinced that the states would enact uniform inheritance tax laws if the Federal Government left the field to them. In particular, it was argued that Florida, Alabama, and the District of Columbia, which offered opportunities for the rich to escape heavy taxation of estates, would be unlikely to agree with the northeastern states upon a uniform tax.

Instead of repealing the law, the Commitee reduced the maximum rate from 40 per cent. to 20 per cent. and removed the gift tax, but retained the $50,000 exemption, the former rates for the first and second brackets, and the 25 per cent. credit for taxes paid to the states.

Summary.—In spite of the general pessimism about the possibility of inducing the states to enact uniform inheritance tax laws, it was possible before the end of 1925 to record progress. At the 1925 sessions of the legislatures of Pennsylvania, New York, Connecticut, and Massachusetts, laws were passed providing, in effect, that no one of the states will tax the personal property of decedents who resided in one of the other three states, provided that such other state does not tax the property of the resident decedents of the first.

Other conflicts and abuses persisted, however. Most of the states attempted to tax all the property left by one of their own citizens no matter where the property was located. Furthermore, most of them tried to tax all of the property owned within their jurisdiction by non-resident decedents.

That part of a decedent's property which consisted of corporate securities was liable to various kinds of additional taxation. As a result, confusion, delay, and exorbitant tax and legal costs burdened large estates in several of the states. It was apparent at the close of the year that the inheritance-tax situation was still extremely unsatisfactory and that further consideration must be given to the existing conflicts.

BANK TAXATION

By Jens P. Jensen

Professor at University of Kansas

Pennsylvania Dual System.—Until 1925 Pennsylvania has permitted either of two methods of taxing bank stock. One was a uniform tax of 4 mills on the dollar of the value of the stock of both national and state banks. The taxable value included the capital, surplus, and individual profits. This tax remains substantially unaltered. The second alternative, which is now abolished (House Bill 539), was a tax of 10 mills on the dollar of the par value of the stock. In general, the banks would select whichever tax would require the smaller payment. It is expected that the abolition of the optional feature will increase the revenue to the extent of $800,000 annually. Aside from the loss of revenue which the optional par-value tax occasioned, it was illogical and inequitable. There is no necessary relation between the par value of the stock of a bank and its ability to pay taxes.

Court Decisions.—Elsewhere there have been but minor legislative changes in the taxation of banks. Attention has been generally absorbed in the readjustment of state and local taxes on banks to the federal law (section 5219 of the Revised Statutes, as amended 1923). Prior to the Richmond decision (256 U. S. 619) in 1921, section 5219 was regarded as requiring merely that shares of national banks be taxed at least no more heavily than other competing capital; and such capital was regarded as consisting solely of commercial state-bank stock. The Richmond decision held this interpretation too narrow, and extended the term competing capital to include several types of credits which had, in several states, been subject to low-rate mill taxes of the classified property tax.

No serious consequences flowed from this judicial reconstruction in the states where the uniformity rule applied to the taxation of banks as well as property in general. But in states where the credits coming within the new judicial construction had been taxed at the low-rate mill taxes or had been subject to state income taxes only two alternatives appeared possible. One was to return to the uniform rate for all property within the Richmond decision, namely, bank stock and competing capital, as was accorded to property in general. The other was to accord to bank stock as low a rate as was accorded to any competing credits. Neither alternative seemed satisfactory.

Basis under Act of 1923.—The 1923 amendment did not help matters a great deal. It permitted any one of three optional, but mutually exclusive methods.

(1) The shares might be taxed as property to the shareholders as before, save that the term "competing moneyed capital" was defined not to include "bonds, notes, or other evidence of indebtedness in the hands of individual citizens not engaged in the banking or investment business and representing merely personal investments not made in competition" with the business of national banks. The rate, as before, could not exceed that upon competing credits.

(2) The second method permitted was to include the income from dividends with the taxpayer's other income subject to a state income tax. Of this method no state has yet availed itself; and it is probably not practical, because of frequent diversity of citizenship, and for other administrative reasons.

(3) A third method was to tax the income of the bank to the bank. The rate can "not be higher than the rate assessed upon other financial corporations nor higher than the highest of the rates assessed by the taxing state upon the net income of mercantile, manufacturing, and business corporations doing business within its limits." Only one state, Massachusetts, has accepted this alternative. The tax is at a rate, determined by the tax commissioner, equal to the average rate which the excise tax paid by foreign and domestic corporations was upon their income for the preceding year. It is probable that similar methods will be used in other states.

Methods Adopted. — The first method is that which has been generally in use, except that the meaning of competing capital is limited, as shown above. There has been no final judicial interpretation of this limitation; but if a decision of a lower court (Peo. ex. rel. Buskirk v. Goldfogle, 205 N. Y. Supp. 870), which has been appealed, may be taken as an index, it appears that the meaning of competing capital may be restored to what it was supposed to be prior to the Richmond decision.

In any event, only one method can be used. States which impose upon shares of bank stock the same rates as upon general property, and in addition employ state income taxes are thus prevented from taxing the income of national banks, although the federal law imposes no bar to the taxation of income of state banks. Four states, namely, Missouri, North Dakota, Montana, and Tennessee, tax the shares as property, and besides tax the income of state, but not of national, banks. Such a condition is of course one of favoritism to national banks; it appears to be neither equitable nor stable.

While the meaning of the amended section 5219 is not yet judicially determined, cases are pending in several states, for example, New York and Kansas. As to bank taxes levied prior to 1923, however, the case is quite clear. Taxes in excess of those sanctioned by section 5219 before its amendment can be recovered except where on technical grounds, such as failure to protest on payment, or failure to bring suit within set time limits, the action will not lie. Thus in a Minnesota case (203 N. W. 874) recovery was allowed; while in a Massachusetts case (300 Fed. 29) the complaint was brought too late.

In most of the states the value of the shares, with local variations, continues as the base of the tax. There have been complaints of unequally heavy assessments of bank stock as compared to the assessments of general property. Nebraska, in a law of 1925, compromised this question by requiring bank stock to be assessed at 75 per cent. of true value, while other property continues legally assessable at 100 per cent.

AUTOMOBILE AND LICENSE TAXES

By Charles P. White
Instructor at University of Pennsylvania

Automobile Taxes.—The feature of the new legislation with respect to automobile licenses during 1925 was the widespread tendency to impose differential rates upon the owners of automobiles and trucks operated for hire. Apparently the argument of railroad officials that their competitors should not be furnished a free roadbed by the state is becoming effective, for a number of states either made for the first time a distinction between commercial and non-commercial vehicles, or increased the differences in actually existing rates.

The simplest type of distinction is that found in the North Dakota law. All motor vehicles pay a basic fee of ten mills on the dollar of factory selling price, and commercial passenger vehicles are charged an additional fee of $10.00 per passenger, based on the seating capacity of the vehicle. Trucks not used in commercial trucking pay fees graduated from $5.00 for a one-ton truck up to $60.00 for a five-ton truck. Trucks used for commercial freighting are taxed approximately twice as much.

However, by far the most common type of the new legislation is that which taxes the gross earnings of commercial vehicles. A list of the states enacting such a tax, with the rates imposed, follows:

California	4%
Connecticut	3%
Idaho	5%
Nevada	4%
North Carolina	6%
South Dakota	3% and 4%

California allows a deduction for city and county licenses or taxes; Connecticut imposes the tax only on bus companies operating solely within the state, and allows a deduction for town taxes on tangible property; Nevada also permits the deduction of any registration license fee; South Dakota imposes two rates—3 per cent. on gross earnings of vehicles equipped with pneumatic or semi-pneumatic tires, and 4 per cent. for vehicles not so equipped.

A third method of imposing higher rates on commercial vehicles is found in the Iowa and Oregon laws. The Iowa legislation requires monthly reports from motor transportation companies showing the miles of road covered, and the county in which the travel occurred, and on the basis of such reports taxes are levied at the rate of one fourth or one half cent per ton mile of travel, the higher rate being levied on vehicles equipped with hard rubber or solid tires. The Oregon law requires passenger motor carriers to pay three fourths of a mill per passenger mile, and freight motor carriers, one mill per ton mile.

The tendency to make a distinction between pneumatic and solid-tired vehicles appears to be well established. The new South Dakota law imposes fees ranging from $20 to $100 upon Class C and D commercial motor carriers, the fees being based on the rated tonnage capacity. This basic schedule is for trucks equipped with pneumatic or semi-pneumatic tires, while the rates for hard tires are 33⅓ per cent. larger. South Carolina provides for the basic schedule to apply to vehicles with hard tires, with a 50 per cent. reduction for all trucks and trailers using pneumatic tires.

In two states laws passed during 1925 provide for the classification of motor trucks according to the type of property transported. The Minnesota law creates three classes. The first class, consisting of trucks transporting agricultural and dairy products, is required to pay 2.4 per cent. on the base value, while the second and third classes pay 5 per cent. and 10 per cent., respectively, depending on the nature of the business engaged in. An Oregon statute also classifies commercial vehicles according to the type of business engaged in. Six classes are created, and the rates vary from ¼ of a mill to 1 mill per ton-mile or per passenger mile.

Nevada has taken a step toward decentralization of the registration system by requiring that county assessors register each motor vehicle and collect the license fee.

The following states enacted legislation providing for a change in the distribution of the proceeds of motor license fees: Oklahoma, Michigan, South Dakota and Idaho.

Several states increased the registration or license fees. The Oklahoma law doubles the rates on cars for which the manufacturer's list price is in excess of $500. Wyoming increased fees by $1.00 for each passenger-seating capacity in excess of seven. A New Mexico law requires commercial cars to pay $3.00 for each passenger carrying capacity in addition to the regular fees charged other cars. Missouri, through an initiative measure passed in 1924, increased fees by 50 per cent., and detailed increases were also made in Florida, Connecticut, and Kansas.

Laws passed in the following states result in a reduction in fees: Ohio (a decrease of approximately 50 per cent. for passenger cars); South Carolina (a decrease varying from ¼ to ½); Indiana (approximately ½); Nevada, New Hampshire and Nebraska. In both Nevada and New Hampshire the fees are based on weight.

License Taxes.—A number of states have increased the licenses or fees required of manufacturer's of cigars and cigarettes. A new law passed by North Carolina, for example, increased the maximum tax from $2,000 to $7,500, the latter being required when the annual output of cigarettes is in excess of 10,000,000,000. A new schedule of rates was also imposed on the manufacturers of cigars with the maximum placed at $15,000 on an annual output in excess of 50,000,000 instead of $1,000, as formerly. A new tax of $10 is imposed on retailers in certain towns.

In North Dakota a law was passed requiring $100 to be paid for the issuance of a permit for the sale of cigarettes, cigarette papers, or wrappers and tubes. In addition, cigarettes, papers, wrappers and tubes are placed in four classes and a graduated scale of rates based on weight and numbers is imposed.

South Dakota also increased the rates on cigarettes. The law also authorizes the state food and drug commissioner to issue licenses to sell cigarettes and cigarette papers on railway trains, and to collect $10 for such licenses.

Oregon has provided that retail dealers in cigarettes, papers, wrappers, tubes, smoking tobacco and snuff shall pay $2.00 for a license to engage in such business. A stamp tax based on the retail price of cigarettes is also imposed.

In South Carolina a new law provides for a license on soft drinks, certain cosmetics, chewing tobacco and snuff, the tax being based on the sales. In general, the rate averages about 20 per cent. of gross receipts.

In addition to the above enactments a number of states have made slight changes in license fees which are not of great general interest.

PUBLICITY OF TAXES

By Alzada Comstock
Professor at Mount Holyoke College

Statute of 1924.—Criticism of the income-tax publicity which was enacted as a part of the Revenue Act of 1924 continued to be heard in 1925. The legislation provided that the Commissioner of Internal Revenue should make available to public inspection, in the office of the collector of each internal-revenue district and in such other places as he might determine, lists containing the names and post-office addresses of all persons making income-tax returns in such district, together with the amount of income tax paid by such persons.

History of the Law.—The question of income-tax publicity had not been a controversial one in the United States since the Civil War period. The first income tax law, that of August 5, 1861, contained a reference to "said taxes, when so assessed and made public"; and although this expression did not appear in the Act of July 1, 1862, or subsequent acts, income tax lists were published and printed during parts of the period, before the income tax ceased to be operative in 1871, with the consequent provocation of controversy. From that time until the passage of the Act of February 24, 1919, the taxpayer's right to privacy was respected.

The foundation for the publicity provision in force in 1925 was laid in the Act of February 24, 1919, in the section providing that the Commissioner of Internal Revenue should make available to public inspection lists containing the names and addresses of persons making income-tax returns. This section was reënacted in the Revenue Act of November 23, 1921, without change. Finally, in the Revenue Act of June 2, 1924, the words "together with the amount of the income tax paid by such person" were added.

Official Opinion.—In the President's message to Congress on December 3, 1924, it was stated that the President believed the practice to be detrimental to the public welfare and bound to decrease public revenues, so that the provision ought to be repealed. The annual report of the Secretary of the Treasury for the year 1924, issued at about the same time, contained fuller statements of the same contention. Secretary Mellon stated that aside from the question of the unnecessary violation of the right of privacy which should be assured to all citizens in the spirit of the Fourth Amendment to the Consttution, publicity was wholly unnecessary from an administrative standpoint. It was difficult to imagine any one thing, he continued, which would be a greater spur to the efforts of all taxpayers to avoid a taxable income than the threat that the amount they paid would be pilloried. The Secretary also noted the fact tha Congress has specifically reënacted the section which penalized the printing or publication of any part of a return, and that no attempt had been made to reconcile these two sections.

Suits.—On May 25, 1925, an important decision regarding publicity was rendered by the United States Supreme Court. Not long after the passage of the Revenue Act of 1924 the records of the sums paid by the income-tax payers of the United States were made available for public inspection. The newspapers followed the public interest by publishing the names and the amounts paid. Attorney-General Stone at once brought suit against three newspapers which had taken this action, on the ground that the printing or publication of any part of a return was prohibited by a section of the Revenue Act of 1924.

The Attorney-General stated that the cases were instituted to test the question of the legality of the publication of information based upon portions of income-tax returns; that the names selected as a basis for indictment of the several newspapers were picked at random, without suggestion or complaint of any nature from the taxpayers mentioned; and that he hoped by this action to get a Supreme Court decision on the publicity sections of the Income Tax Law before March 1, 1925.

Judicial Review.—The lower courts dismissed the indictments against the newspapers, and the Supreme Court affirmed the lower court in the appealed case (*United States v. Dickey*, U. S. Sup. Ct., May 25, 1925). The court declined to consider the wisdom of secrecy, as being a question for Congress, and also found it unnecessary to deal with the constitutional question of whether a statute forbidding publication contravened the First Amendment of the Constitution. It found the question to be one of statutory construction, and held that the statute in question, section 257 (b) of the Revenue Act of 1924, was a definite declaration by Congress that the information should be public property.

Mr. Justice Sutherland, in holding that the newspapers were within their rights in publishing lists of income taxpayers and the amounts of their taxes, said: "Information, which everybody is at liberty to acquire and the acquisition of which Congress seemed especially desirous of facilitating, cannot be regarded otherwise than as public property, to be passed on to others as freely as the possessors of it may choose."

New Agitation.—When the federal income-tax returns were again opened to public inspection on September 1, 1925, the public sentiment appeared to have changed somewhat, for a few newspapers in the large cities refused to publish lists on the ground that such publication was an unwarranted invasion of privacy. Others, however, were apparently unaffected by the current protests against the use of the information in this way, and facilitated the satisfying of individual interest by publishing pages of names of taxpayers together with the amounts of income tax paid.

Opposition to the publicity provision was expressed again by Secretary of the Treasury Mellon in his statement before the Ways and Means Committee of the House of Representatives at the opening of the Committee's hearings on the tax reduction bill on October 19. Mr. Mellon advocated the repeal of this section on the grounds that it was utterly useless from a Treasury standpoint, for inquiry revealed the fact that no additional tax had been collected due to the publicity provision, and, obviously, it was unnecessary for the Treasury to get its information as to what taxes a taxpayer pays from publication in the newspapers; and that publicity encouraged further tax evasion and loss of revenue. He added: "There is no excuse for the present publicity provision except the gratification of idle curiosity and the filling of newspaper space at the time the information is released," and noted that no other country published such information.

Present Status.—In the bill which was prepared by the Ways and Means Committee for action by the House in December the publicity clause was revised, and the privileges of the public were restricted approximately to those which it enjoyed in 1921. The bill would permit inspection of returns on order of the President, by the Ways and Means and Senate Finance Committees, and by other committees of either body, especially those which are concerned with taxation matters. The Commissioner of Internal Revenue was directed as before to make available to public inspection, in such manner as he may determine, in the office of the collector in each internal-revenue district and in such other places as he may determine, lists containing the names of individuals making income-tax returns, but the very important provision that "the amount of the income tax paid" by such persons should be included in the lists was eliminated.

When the Ways and Means Committee concluded its work upon the bill in November the press commented that the repeal of the publicity section was one of the parts of the bill which would meet determined opposition. It was estimated that at that time a small majority of the Senate favored the retention of the publicity clause.

XII. TAXATION

STATISTICS OF TAX COLLECTIONS

[On basis of reports of collections [1]]

The following table of tax collections in the United States is compiled from the annu report of the Secretary of the Treasury for the fiscal year 1924-1925. Revenues derived fro specific commodities such as spirits, tobacco, etc., have been omitted.

Fiscal year	Income and profits [2]	Estates	Manufactures and products [1,3]	Sales (consumers' or dealers')	Stamps
1916......	$124,937,252.61	....	....	....	$42,196,443.
1917......	387,382,343.96	$6,076,575.26	....	....	8,926,310.
1918......	2,852,324,865.89	47,452,879.78	$36,570,478.37	....	21,874,734.
1919......	2,600,783,902.70	82,029,983.13	75,598,257.17	$2,301,989.95	45,251,358.
1920......	3,956,936,003.60	103,635,563.24	216,230,346.67	45,310,351.30	87,687,246.
1921......	3,228,137,673.75	154,043,260.39	177,802,191.37	45,794,878.32	75,664,840.
1922......	2,086,918,464.85	139,418,846.04	143,942,311.65	28,128,719.27	58,224,526.
1923......	1,691,089,534.56	126,705,206.55	163,981,350.30	21,135,707.75	61,490,151.
1924......	1,841,759,316.80	102,966,761.68	177,531,749.14	23,389,972.43	58,526,017.
1925......	1,761,659,049.51	108,939,895.52	130,382,390.60	10,494,934.67	46,068,399.

[1] Including special taxes relating to manufacture and sale.

[2] Including receipts from excise tax on corporations as follows: Fiscal year 191 $20,959,783.74; 1911, $33,511,525.00; 1912, $28,583,259.81; 1913, $35,006,299.84; a 1914, $10,671,077.22; also munitions manufacturers' tax for 1917, $27,663,939.63; a 1918, $13,296,927.32.

[3] Including receipts from the tax on raw cotton as follows: Fiscal year 1863, $351 311.48; 1864, $1,268,412.56; 1865, $1,772,983.48; 1866, $18,409,654.90; 1867, $23 769,078.80, and 1868, $22,500,947.77.

Fiscal year	Corporation capital stock	Occupational (special taxes)	Admissions	Dues	Receipts under the national prohibition act	Penalties, etc. [4]	Miscellaneous [5]
1916..	....	$6,908,108.21	....	....	....	$458,772.77	$154,522.6
1917..	$10,471,688.90	5,237,043.97	....	....	....	871,606.22	124,184.7
1918..	24,996,204.54	2,691,586.87	$26,357,338.80	$2,259,056.57	....	985,219.86	172,723.0
1919..	28,775,749.66	4,721,298.16	50,919,608.42	4,072,548.59	....	....	1,561,004.1
1920..	93,020,420.50	9,913,280.85	76,720,555.43	5,198,001.31	$641,029.34	....	3,045,182.8
1921..	81,525,652.88	8,585,540.11	89,730,832.94	6,159,817.69	2,152,387.45	....	1,975,968.0
1922..	80,612,239.80	8,662,759.89	73,384,955.61	6,615,633.92	1,979,586.94	....	3,866,190.8
1923..	81,567,739.32	8,035,583.49	70,175,147.11	7,170,730.61	729,244.23	....	3,125,077.8
1924..	87,471,691.52	7,814,413.92	77,712,523.60	8,009,861.49	855,395.37	....	4,232,637.1
1925..	90,002,594.56	5,811,558.04	30,907,809.09	8,690,588.35	560,888.07	....	12,156,929.4

[4] After the fiscal year 1918, all penalties are included with other receipts from the respective taxes to which they relate.

[5] Including for fiscal year 1903 receipts from sundry taxes repealed by the act of Apr. 12 1902 (war revenue repeal act), and for 1919, 1920, and 1921 receipts which remained unclassified at the time the statistical tables were compiled.

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Professor at Massachusetts Institute of Technology

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DIVISION XIII
DEFENSE AND ARMAMENTS

ORGANIZATION OF THE ARMY

By William Addleman Ganoe
Major, U. S. A., Army War College

ORGANIZATION

Army of the United States, as it now stands, was created by the National Defense Act of 1920 in the proportion of one half Organized Reserves, one third National Guard and one sixth Regular Army. Thus, over 80 per cent. of our officer personnel is composed of men whose main pursuits are civilian. A comparatively small permanent force, the Regular Army has, besides policing our territory and doing some very vital industrial work, the double duty of keeping itself educated in the complex technique and practice of modern war and of passing the essentials of that knowledge on to the National Guardsman and the Reservist. The above legislation was made principally at the instigation of ex-service men, when the lessons of the late war were yet vivid, in order to overcome in the future the waste and confusion characterizing our previous wars. It has thus come about that the military forces of the country are placed upon the most democratic, suitable and economical basis they have ever occupied, so that the nation enjoys its first real military policy. The practical purpose of the triple components of this new army is to have the small Regular Army, in case of emergency, bear the brunt of the first line of defense, even to annihilation, but at least until the National Guard and Organized Reserves can mobilize to go to the front. On June 30, 1925, the strength was as follows: Organized Reserves, 72,191 officers, 5,116 enlisted men; National Guard, 11,114 officers and 166,411 enlisted men; Regular Army, 12,462 officers and 122,792 enlisted men for a population of 126,732,318 people.

War Department, as the managing agency of the military forces for the people, is presided over by the Secretary of War, a civilian, who is answerable directly to the President of the United States, the Commander-in-Chief. The Secretary (Mr. Dwight F. Davis), in turn, is assisted by the Chief of Staff (Major General John L. Hines), who oversees the military functions, and by the Assistant Secretary of War (Mr. Hanford MacNider), who has charge of the supply, real estate and war industrial plans. These three, two civilians and an army officer, constitute the War Council.

Subdivisions.—Under the Secretary of War are activities of Insular Affairs, the Panama Canal, Inland and Coastwise Waterways, River and Harbor Improvements, with other civil work; as well as the branches of the army: Infantry, Cavalry, Field Artillery, Coast Artillery Corps, Air Service, Corps of Engineers, Signal Corps, General Staff Corps, Adjutant General's Department, Inspector General's Department, Judge Advocate General's Department, Quartermaster Corps, Finance Department, Medical Department, Ordnance Department and Chemical Warfare Service, Officers of the Bureau of Insular Affairs, and officers and enlisted men of the Militia Bureau.

Territorial Distribution. — The army is scattered over the United States, Hawaii, Panama, Alaska, Porto Rico, the Philippines and China, not including military attachés and the like in other countries. Nine corps area commanders in the United States and department commanders in Hawaii, Panama, Canal Zone, the Philippines and China operate directly in the chain of command under the Secretary of War and Chief of Staff, as follows: First Corps Area, including Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut, is commanded by Major General André W. Brewster; Second Corps Area, including New York, New Jersey, Delaware and Porto Rico, by Major General Charles P. Summerall; Third Corps Area, including Pennsylvania, Maryland, Virginia and the District of Columbia, by Major General Douglas MacArthur; Fourth Corps Area, including North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi and Louisiana, by Major General Johnson Hagood; Fifth Corps Area, including Ohio, West Virginia, Indiana and Kentucky, by Major General Robert L. Howze; Sixth Corps Area, including Illinois, Michigan, Wisconsin, Jefferson Barracks and Arcadia Target Range, Missouri, by Major General William S. Graves; Seventh Corps Area, including Missouri (except as above), Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota and South Dakota, by Major General George B. Duncan; Eighth Corps Area, including Texas, Oklahoma, Colorado, New Mexico and Arizona, by Major General Ernest Hinds; Ninth Corps Area, including Washington, Oregon, Idaho, Montana, Wyoming, Utah, Nevada, California and Alaska, by Major General Charles T. Menoher; the Hawaiian Department, by Major General Edward M. Lewis; the Philippine Department, by Major General James H. McRae; the Panama Canal Department, by Major General William Lassiter; and the U. S. Army Forces in China, by Major General William D. Connor. These areas are again subdivided into tactical divisions and brigades under command of major and brigadier generals when such can be obtained.

Appropriations. — The appropriation for the army for the fiscal year 1925 was $334,553,786. Of this amount 23.3 per cent. went to purely industrial and civil use, namely, Rivers and Harbors, Flood Control, Muscle Shoals, Soldiers' Home and the Panama Canal; another 15.1 per cent. was spent directly or indirectly upon the civilian components. In addition, approximately 13 per cent. more went to the support of the overhead: education in the army and tests and experiments to keep abreast of the progress of other nations. As will be seen later, other money not included above was saved or spent upon the public at large. Thus, much less than half of the money available was left for the upkeep of the regular forces in their training and work in our extensive territory.

BRANCHES OF SERVICE

Infantry (Major General R. H. Allen, Chief).—Out of an authorized strength of 4,200 officers and 110,000 enlisted men, on June 30, 1925, there were actually 3,654 officers and 40,858 enlisted men. Since infantry is the basic arm, it alone having the power to enforce decisions in battle, all other branches are trained, organized and equipped to assist the infantry in its needs and functions. It comprises in its organization the essential combat and administrative elements which make its units self-sustaining. The infantry weapons are primarily the rifle and bayonet, and secondarily, grenades, pistols, automatic rifles, machine guns, three-inch trench mortars, 37 mm. cannon and tanks. The Chief supervises and controls the service schools within the branch, develops sound tactical doctrines for the infantry, procures necessary training regulations and gains team-work with other branches through higher authority. He particularly has his interest centered in peace time on the advancement of education at the Infantry and Tank Schools at Fort Benning, Ga., and Camp Meade, Md., respectively. Up to June 30, 1925, a total of 2,674 officers had completed courses at the former and 203 officers and 3,638 enlisted men at the latter. The course for Regular Army officers at the Infantry School is nine months and for other officers from six weeks to three months. Since the plant has to be large enough to give suitable terrain for all kinds of training, the present school occupies a reservation covering 97,000 acres. The graduates of both schools have been distributed among the regiments of the Regular Army, National Guard, Organized Reserves and the colleges. In this way infantry training is kept economically up to date.

Cavalry (Major General Malin Craig, Chief).—This branch has carried along throughout the year the army's training in that mobile arm. Since, in a large and open country such as the United States, night reconnaissance and counter-reconnaissance, security for large forces, quick seizure of positions, the containing of hostile forces, the break-through, the pursuit and raids can be accomplished almost exclusively by cavalry, it has had to train its personnel and animals along varied and comprehensive lines. Besides carrying out duties similar to those of the chiefs of other combatant branches, the Chief of Cavalry supervises the Cavalry School at Fort Riley, Kansas, occupying about 20,000 acres, for the education and training of all parts of our army in riding, horsemanship and cavalry leadership to the ends above stated. In the 1924-25 course 82 Regular Army officers, 17 National Guard officers, 10 Reserve officers and 4 Cuban officers took regular, machine gun, special advanced equitation and special courses. To gain some idea of the efficiency of the branch and this school, a single horse-show team of five cavalry officers and twelve horses during the past summer in the east captured 130 ribbons, many cups and other prizes. A similar team, now in Canada, will compete against teams of other countries at the National Horse Show in New York City, doubtless with credit to the United States. The Cavalry Board, in its work during the year, prepared, revised or reviewed 33 training regulations, tested 54 articles of equipment and submitted studies on equipment projects. At the Cavalry School are three schools for enlisted men. The Horseshoers' School turned out 41 men having finished Cavalry horseshoer's courses; the School for Bakers and Cooks turned out 244 men, who went as instructors to the National Guard, R.O.T.C., and Organized Reserve camps throughout the middle west; the Saddlers' School graduated 21 men.

Field Artillery (Major General William J. Snow, Chief).—This branch shows with its personnel and instruction a steadily increasing advancement, the enrollment in the R.O.T.C.'s for the past few years being an illustration: 6,011 for 1920; 7,165 for 1921; 7,552 for 1922; 8,043 for 1923; and 10,362 for 1924-25. Graduates of these courses were commissioned in the Field Artillery section of the Organized Reserves in numbers, as follows: 1921, 80; 1922, 263; 1923, 371; 1924, 370; 1925, 510.

Field Artillery School is located on the Reservation of Fort Sill, Oklahoma, adjoining the Wichita National Forest and Game Reserves. The school uses an area of 51,000 acres, whose extent furnishes a large and suitable firing area. The School includes a permanent Air Service Flying Field, where student officers who volunteered were given a special and additional course in aërial observation with special heed paid to observing field artillery fires. A battalion of Infantry has provided the means for study of Infantry formations and operations both in the classroom and field demonstrations. A riding hall, school stables and animals have afforded instruction in riding and draft. In the study of motors and tractors, the student has been required to don overalls, set up and assemble his tractor and to operate it in road tests.

In all instruction the aim has been to give the student a practical knowledge which will be essential to him, not only in his present grade but in the next higher. During the 1924-25 term, 113 Regular Army officers, including an Infantryman and one general officer, 51 National Guard officers, 25 Reserve officers, 4 Cuban officers and 1 Philippine Scout officer finished regular and special courses; and 78 enlisted men of the Regular Army and 17 of the National Guard finished specialist courses in Horseshoeing, as Saddlers, in Motor Mechanics, Gun Mechanics and Communications.

Seacoast Defense.—The modernization of our seacoast defenses was continued by the Chief of Engineers not only for this country but especially for the Panama Canal and Oahu. So far as funds are available, all essential installations were kept in proper repair. Since, with the increase in range and power of modern armament both afloat and ashore, fortifications must change or become obsolete, full use was made of recent developments in railway guns, in long-range searchlights, in anti-aircraft armament and in improved construction methods. In addition to the maintenance of modern fortifications, Congress authorized funds for the preservation of the historical forts at San Juan, Porto Rico, Fort Niagara, N. Y., and Fort Marion, Fla. This was carried out as intended, assisted, in the first case, by funds made available by the Government of Porto Rico. Under the Washington Treaty the fixed defenses of Manila Bay cannot be augmented but can and are being maintained in a reliable state of efficiency. The great Panama Canal, the naval base at Pearl Harbor, Oahu and the most important of our own coastal harbors are being made secure against hostile naval bombardment as rapidly as funds permit. During the fiscal year 1925 the Chief of Engineers had available for all these purposes the total sum of $1,171,413.

Board on Engineer Equipment at Fort Humphreys is constantly engaged in testing and developing essential tools and methods required by engineers in war. For example, the pontoon bridge material now in general use by the army is practically the same type as was successfully developed during the Virginia Campaigns of the Civil War. Equipage built and tested at Fort Humphreys, however, must replace the old type which is unable to support the heavy loads demanded by modern field forces. The "Advance Guard" pontoon boat built of an aluminum alloy and a new design of wooden pontoon, built slightly larger but of double capacity, are some of the results recently achieved. In developing the use of aërial photography for map-making, the Board is coördinating the work of the 29th Engineer Battalion (topog.) and of the detachment on duty with the Air Service at the McCook Field development station, as well as experiments in map-making carried on at the Engineer Reproduction Plant.

SIGNAL CORPS

This corps (Major General Charles McK. Saltzman, Chief Signal Officer), besides carrying on its training of the army in signal work, has benefited the country in industrial and scientific ways. The Corps laid a cable system of 4,588 statute miles between Seattle, Washington, and Seward, Alaska, from March 25, 1924, when the first load of cable left England, to October 9, 1924, when it was completed. It operated during 1925 the largest and most comprehensive radio net in the world for the following bureaus and departments: War Department, U. S. Veterans' Bureau, Department of Labor, Navy Department, Department of Justice, Shipping Board, Treasury Department, Department of Agriculture, Department of Commerce, Post Office Department, Department of the Interior, Interstate Commerce Commission, Panama Canal, Bureau of Public Health Service and Coast and Geodetic Survey. The net has grown from something which handled only a small part of the War Department business in 1922 to a service for practically all government rapid communication, with consequent saving to the United States. In electrical work the Corps' research and development at its various laboratories has been of a character which will aid commercial activities as well as military. Among other things, a heterodyne frequency meter was developed, which will measure accurately frequency above 2,000 kilocycles; a radio beacon, which will enable an airplane to fly to or from the station of the beacon on a given course; and a sound-ranging apparatus, not quite yet perfected, for the location of artillery and for subaqueous sound ranging. The Signal School at Fort Monmouth, N. J., graduated 58 officers and 126 enlisted men from all branches of the service in June, 1925. At that time the number of Reserve Officers in the Signal Corps was 2,161. In telephone work the Corps operated 131 switchboards and 19,375 substations owned by the government, and 5 owned commercially. In its meteorological work it kept in close coöperation with the Air Service, especially in the round-the-world airplane flight. The Corps has been exceedingly successful in its progressive training methods, especially by the use of films in instruction for its own personnel, and by furnishing them to other branches.

GENERAL STAFF CORPS

The main dependence of the Secretary of War and Chief of Staff, in the multifarious activities of the army, is organized with a Deputy Chief of Staff, five Assistant Chiefs of Staff, and other officers of the Regular Army, National Guard and Organized Reserve. The Deputy Chief of Staff (Major General Dennis E. Nolan) acts for the Chief of Staff in his absence and has general supervision as an executive. The five assistants are each in charge of sections known as G-1 (personnel), G-2 (collection, evaluation, and dissemination of military information), G-3 (organization, training and operations), G-4 (supply), War Plans Division (specific plans in conjunction with the Navy for national defense).

National Man-Power.—The G-1 Section (Brigadier General Campbell King, Assistant Chief of Staff, G-1) made minute and modern studies of the man-power of the country in connection with selective service for any contingency of war forced on the United States, with a view to saving the maximum number of lives against such a calamity. Even the use of women in industry was taken up, not only for the purpose of releasing men but also of disrupting the country's life, business and resources as little as possible.

Information.—G-2 Section (Colonel James H. Reeves, Assistant Chief of Staff, G-2), in addition to observing intimately military, economic and political happenings over the World as the "eyes" of the War Department, made fortunate translations of documents during the fiscal year, 1925, for the White House, the Navy Department, Department of Justice, State Department, Department of Agriculture, Treasury Department and Department of the Interior. It received and evaluated 12,069 reports of 46 countries, while it maintained a cordial liaison with military leaders and authorities of foreign nations.

Quarters.—G-3 Section (Brigadier General Hugh A. Drum, Assistant Chief of Staff, G-3) covered a wide field during the year. It found that probably the most hampering feature to operations and training of the army was the condition which placed 40,000 enlisted men, 2,000 officers and 10,000 animals under temporary shelter the year round in the United States. Both the present and former Secretary of War have pointed out the high sense of duty and patriotism of officers and men in carrying out their many duties while living in dilapidated and fire-exposed buildings, but have also shown the lack of economy in having troops spend a large part of their time, which should be given to more important duties, in repair of rapidly deteriorating quarters.

Education.—Falling under the purview of this Section is the education of the army of the United States, which may be classified into General and Special Service Schools, Enlisted Men's Schools, Correspondence Courses, R. O. T. C.'s at colleges and schools, R. O. T. C. Camps, C. M. T. Camps, National Guard and Reserve Officers' Camps. The General and Special Service and Enlisted Men's Schools [See table and schools mentioned under separate branches], being the sources and centers of military education in the United States, have run to capacity throughout the year, wherever funds permitted. The mission of the correspondence courses being to provide technical military instruction for members of the Reserve forces, for civilians who wish to become Reserve officers, and for Reserve Corps, National Guard and Regular Army officers in preparation for Service Schools, the education involved has been far-reaching; the enrollment for 1925 reached 20,797, an increase of 5,744 over the preceding year, the total number exceeding the combined student bodies of Harvard, Yale, Cornell, Princeton and Brown Universities. Three hundred and twenty-six R. O. T. C. units at 226 institutions gave an enrollment in 1925 of 125,504, which total would have run higher had funds been available. The growth of the number of graduates eligible for commissions is illustrated by the figure of 167 in 1920 as against 3,953 in 1924. The estimated attendance at the six-week R. O. T. C. summer camps for 1925 was 9,300; the actual attendance at C. T. M. camps, 33,975; and at National Guard and Reserve camps, 21,224 officers and 140,909 enlisted men. None of the above attendances include Regular Army personnel, which aggregated 9,707 commissioned officers and 85,625 enlisted men available, on June 30, 1925 in the United States, for carrying along this entire task of education and training. Four thousand forty-eight were already on permanent all-the-year-round duty with the National Guard and Organized Reserves, so that there was required for the summer camps practically all of the home strength of the combat branches of the Regular Army. Some conception of the magnitude of this education and training can be gained when it is known that, exclusive of care of animals and equipment, programs for regimental training call for the soldier to be proficient on over 50 subjects, and that a present force of approximately 118,000 enlisted men is required to carry on activities contemplated by the National Defense Act for 280,000.

Housing and Mobilization.—G-4 Section (Major General Fox Conner, Assistant Chief of Staff, G-4), during the year, took up specifically the housing needs of the army, the maintenance of the general army plant with the limited funds available and the disposition with greatest benefit to the United States of unoccupied military reservations. The Section made savings in the use of water over rail transportation. On the principle that the better the weapons, the fewer the men who need to be exposed to slaughter, and the more quickly is peace obtainable, it spent successful effort on the improvement of materials for war, and aided the Assistant Secretary in his problems of supply. Plans for the mobilization of industry in case of war have been perfected to the greatest extent the country has seen. To date, 15,000 facilities have been allocated and 17,000 commodity committees have been organized. In this connection the Chief of Engineers is making a survey of the power resources of the nation.

War Plans Division (Brigadier General Harry A. Smith, Assistant Chief of Staff, W. P. D.) has carried out studies for defense of our islands and coasts from attack by other nations, special attention having been given to anti-aircraft. In this work it secured the fullest coöperation of the Navy Department in its efforts to perfect the team-work necessary in resisting any outside aggression. It handled the Hawaiian Grand Exercises of April, 1925.

ADJUTANT GENERAL

Adjusted Compensation.—The Adjutant General's Department (Major General Robert C. Davis, Adjutant General), in addition to its growing duties connected with personnel, correspondence and records of the War Department, was called upon to perform a huge task for the public benefit—the administration of the Adjusted Compensation Act (the Bonus). The problem covered the cases of 5,250,000 men, whose records and applications had to be handled in a limited time, each record involving 27 separate checking operations. The Adjutant General set out immediately to borrow desks, tables, machinery and the like for temporary use, and with the coöperation of the Post Office Department, the General Supply Committee and other agencies in Washington, was able to obviate delay and save the government upwards of $289,000. Twelve million blanks were distributed on June 16, 1924, to every post of the American Legion, Veterans of Foreign Wars, Disabled American Veterans, every chapter of the American Red Cross, all agencies of the Army, Navy and Marine Corps, and the Veterans' Bureau, both at home and abroad, and to every possible office in the United States and its possessions, the distribution being completed on June 28. By being mailed so as to give the more distant points the preference in point of time, the receipt of applications was practically simultaneous. For the War Department it required at the peak 2,517 clerks. Some idea of the complications that were met is shown by the record of 50,328 Smiths, 40,101 Johnsons and 28,902 Browns, many having initials identical. In addition, 23 per cent. of those entitled to compensation could neither read nor write the English language. The task was concurrent with the regular load of 1,170,792 correspondence cases during the fiscal year June 30, 1925; the Information Section of the office alone furnishing replies to 60,071 applications, many of which were from civilians. By July 1, 1925, this vast work was completed to such a degree that the bonus could then be handled by the normal force.

Recruiting.—During the fiscal year, June 30, 1925, the army was maintained at an average monthly enlisted strength of 118,750, exclusive of Philippine Scouts, 49,479 enlistments and reënlistments being accomplished by the Adjutant General's Department. Fifty-five and one half per cent. of those discharged at the expiration of their service reënlisted within three months. The recruiting service in the field consisted of 100 officers and 950 enlisted men, distributed among 59 districts averaging six city stations each. Public buildings were utilized for officers wherever available, 96 stations being rented at an average cost of $26.44 per room. Advertising was supervised by the Recruiting Publicity Bureau consisting of four officers and 25 men under the direct supervision of the Adjutant General and located at Governor's Island, New York. Publicity expenses averaged $1.14 per enlistment. Recruiting costs, including pay and allowance of recruiting personnel, averaged $65.01 per enlistment for the fiscal year. During the third quarter when conditions permitted capacity production, the average cost was $21.27 per enlistment.

Activities of the Adjutant General's office were further extended in coöperation with G-1, especially in handling personnel, and in coöperation with G-3 in administering the educational work for the army of the United States.

INSPECTOR GENERAL

Major General Eli A. Helmick, Inspector General, during the year ending June 30, 1925, inspected the army of the United States with reference to instruction, disciplinary training, housing conditions, uniform, clothing, rations, desertions, trials, discipline, morale, court-martial procedure, money accounts, recruiting, property, transportation, medical attendance, sanitation, arsenals, depots, remount service, national military parks, disciplinary barracks and schools. To illustrate its activities: the department inspected during the year 485 accounts of disbursing officers and 543 posts, camps, stations, and transports; and in addition, made numerous special inspections and investigations involving matters of great importance to the government. The Inspector General himself inspected 41 stations in six corps areas and the Hawaiian Department; and the office in Washington alone completed 34 investigations, which required the usual unremitting labor and unbiased judgment in arriving at fair and logical conclusions. In one case, where a fraudulent over-payment of $36,000.00 was uncovered, not only did the investigation lead to recovery for the Government of a substantial part of the sum, but caused the institution of methods preventive of similar frauds. Although this department by its very mechanism must conduct its work without partiality or affection, it more than ever in 1925 has pursued the policy of helpful hints and advice wherever appropriate, so as to leave lasting correction without recourse to punishment or rebuke.

JUDGE ADVOCATE GENERAL

Major General John A. Hull, Judge Advocate General, is the legal adviser of the War Department and is responsible for the administration of military justice in the army of the United States. The Department's duties cover the consideration of the legal phases of business, property, financial operations and control of personnel. For the period ending 1925, approximately 22,500 court-martial cases have been reviewed on appeal since 1920. One section of the Department acted as an appellate court, reviewing every general-court-martial case with careful scrutiny for any errors which might have occurred in the trial. Since under the law every such case must undergo this review in writing—a review which corresponds to that of a state and federal appellate court in criminal cases—every substantial right of the accused has been safeguarded with the effect of maintaining a corrective discipline at once just, prompt and uniform. Whenever the circumstances of the case justified it, recommendation was made for clemency, with often the honorable restoration to duty of the offender.

A section of the Judge Advocate General's office acted as legal representative in the United States for the Insular Government of Porto Rico and the Philippine Islands in appellate cases before the federal courts in the United States, including the Supreme Court; and as legal adviser to the Chief of the Bureau of Insular Affairs in connection with the administration of the civil government of our Insular possessions.

SPECIAL DEPARTMENTS

Finance Department (Major General Kensie W. Walker, Chief) is charged with the disbursement of all funds of the War Department, and its chief is the budget officer. During the fiscal year 1925 the department paid its bills for supplies and services so promptly that the reduction to a cash basis has resulted in a saving of $214,818.98 to the government from commercial discounts. The salaries and wages of all troops of the Regular Army and Philippine Scouts were paid by this department during the year. To encourage the saving instinct in the soldier, he is allowed to deposit his money with the Finance Department at a small rate of interest; deposits for the year 1925 amounted to $1,384,686.68. Money deposited by the Finance Department with the Treasurer of the United States from surplus war supplies, other government property, interest, premiums and dividends on advanced payments during the World War to provide firms, rentals, service, reimbursements, trust funds, Engineers, Panama Canal and miscellaneous sources as a surplus and saving for 1925 amounted to $63,143,918.54. The Finance Department paid, during October, 1925, alone, to government and commercial life insurance companies for premiums of military personnel the sum of $238,266.13. It has paid out to widows for gratuity $695,920.45 since 1922; and in one month in 1925 paid to dependents $88,055.

Medical Department (Major General Merritte W. Ireland, Surgeon General) has brought the mortality and the venereal-disease rates during 1925 to the lowest mark in the history of the army. The death rate from disease is now less than two per thousand, and from all causes, less than four per thousand. For the quarter century ending 1925 the incidence of venereal disease has declined 69 per cent. and malaria 98.7 per cent. During the year the Medical Department of the army conclusively demonstrated for the benefit of the world that the method of transmitting dengue fever was by mosquitoes, the detailed researches in connection with this study being as complete as those conducted for yellow fever by Walter Reed and his Army Medical Associates in Cuba immediately following the Spanish-American War.

Ordnance Department (Major General Clarence C. Williams, Chief) see p. 360.

Chemical Warfare Service (Major General Amos A. Fries, Chief) is charged with the investigation, development, manufacture, procurement and supply of all smoke and incendiary materials, all toxic gases and all gas-defense appliances, and the instruction of the army of the United States in such matters. Since it is now an established fact that gas is the most humane of all destructive agents, and that this branch of the army is aiding industry over a wide field, it is evident that the Chemical Warfare Service has been much misunderstood. Statistics of the Surgeon General of the Army for the World War now show conclusively that 24 per cent. of all those wounded by weapons other than gas, died, whereas less than 2 per cent. of the gas casualties proved to be fatal. It is estimated that not more than 200 men were killed by gas on the field of battle. In industry since the war the developments of the Chemical Warfare Service have been of great benefit to the country. At the request of the Public Health Service, the Chemical Service undertook to make the fumigation of ships, from which there have been numerous casualties, safer and more efficient; by mixing tear gas with hydrocyanic gas, the Service has reached a state of experimentation in 1925 where the safety of ship fumigation is assured. The Service has also aided the Bureau of Mines in developing a gas mask that would render absolute protection to the miner against the deadly carbon monoxide, this discovery alone justifying the money spent on chemical warfare research. Heretofore, whenever a leak occurred in pipes of ammonia refrigeration, men were prevented from approaching the burst on account of the deadly fumes; the Chemical Warfare Service discovered silica gel, which in a mask affords adequate protection. In the extermination of pests the Service has aided the Bureau of Biological survey and Bureau in Entomology, ridding crops of rats, gophers, locusts, grasshoppers and many other destructive animals and insects to the extent of saving millions of dollars. In spraying of fruit trees, the Service has devised a simple and successful method of covering the orchards rapidly and widely by airplanes. The Service during the year has aided the Bureau of Explosives and Interstate Commerce Commission in the transportation of explosive and toxic agents by devising rules and regulations based on the mass of experience gained by the personnel of the Service. It has also aided police departments in their use of chemical agents against mobs and bank robbers, especially as to the safe handling of these commodities. It is estimated that many lives have been saved by the Chemical Warfare Service in peace since the War.

ARTILLERY AND ORDNANCE

By William Addleman Ganoe

Major, U. S. A., Army War College

COAST ARTILLERY CORPS

Personnel and Material. — The Coast Artillery Corps (Major General F. W. Coe, Chief), during 1925, improved its development of personnel and material for its primary roles of long-range firing at land and water targets, and at targets in the air. With the country's extensive coastline, most of the Corps' defensive plans are based upon the protection of our shores against an enemy advancing from a landing base which he must first secure by combined operation of his army and navy, supported by a large force of aircraft. Coast Artillery having the double duty of attacking the enemy's vessels at long range, and of bringing down his aircraft, accomplishes its first mission by three types of long-range guns classified according to their method of mounting and transportation, as fixed artillery (fortification), railway artillery, and tractor-drawn heavy artillery; and its second mission, by three types of anti-aircraft weapons, the 3-inch gun, the heavy machine gun (especially adapted for anti-aircraft fire) and the high powered searchlight accompanied by its listening devices which locate aircraft at night by sound.

Coast Artillery School.—The training of officers and selected enlisted men for these highly specialized duties is carried out at the Coast Artillery School, Fort Monroe, Virginia, the second oldest institution of learning in the army, which has for more than 100 years carried along the education of artillery officers on this appropriate site. The courses at the present time include instruction in the tactics of artillery, methods of gunnery, electrical and radio engineering and motor transportation. For captains and lieutenants, the technical detail of these subjects is very thoroughly covered, and the principles applied by practical instruction. In the advanced course for senior officers, the instruction is along broader lines. During the past year the following number of officers have successfully pursued these courses—Battery officers: 34 Regular Army, 2 Cuban Army, 17 National Guard, 8 Organized Reserves—Field Officers: 35.

A very desirable feature of the courses for selected enlisted men is that the students are fitted for professions in civil life after their separation from the Army. The courses cover the following: Electrical Engineering, Radio Engineering, Motor Transportation, Stenography, Typewriting and other clerical work, Mechanical Drafting, Engraving and Photography. Since no restriction prevents graduates from going into a profession in civil life, many men who have received their entire education in the Coast Artillery have later successfully engaged in technical professions outside of the Army. In 1925, 67 men completed these courses.

Long Range Armament.—Aside from development in methods of defense against aircraft, the principal development in the Coast Artillery during the past few years has been along the lines of training in the use of high-powered mobile types of long-range armament capable of operating with a mobile army. Such development avoids the necessity of placing in permanent fortifications a large amount of expensive installation which is of no value at another part of the coast-line. By holding the reserve of railway artillery at a centralized point, the excellent railway net in this country can be used to concentrate at a threatened locality a large amount of this type of artillery, in order to engage enemy naval vessels and troop transports before they can come within striking distance of the coast.

In November, 1925, the "pilot" 14-inch railway gun, made and perfected by the Ordnance Department, was sent across the continent to Fort McArthur near Los Angeles, California, from Aberdeen Proving Ground, Md. The gun and carriage weigh 365 tons or as much as a heavy locomotive. A careful survey of the capacity of the transcontinental railroads preceded the movement of this heavy gun, which was made at limited speed until smooth-running was assured, and then at higher speed. The trip was without breakdown or incident, demonstrating that heavy artillery so mounted can be taken from coast to coast in a week or less.

Coast Defense Guns.—The most powerful weapons ever designed are the 16-inch coast-defense guns recently made by our Ordnance Department and added to a number of our important fortifications. Their maximum range is 50,000 yards or over 28 miles; the projectile, of forged steel, weighs 2,340 pounds. A method of installing these new guns has been followed, which is intended to reduce the probability of their being successfully neutralized by either ships' guns or airplane bombing. The guns, magazines and position-finding installation are so dispersed over the terrain and concealed, that the target presented to an enemy is less than that of the older small-calibre batteries. A number of these superpowerful batteries have been completed.

Similar development has been made with heavy artillery of medium calibre which is drawn by tractor. The object to be obtained is generally the same—the concentration of this type of artillery at a threatened point.

Defense Against Aircraft. — The most important recent development in the Coast Artillery has been with the means of defense against aircraft. The efficacy of anti-aircraft gun fire having been questioned by witnesses appearing before a Congressional Committee conducting hearings on Air Service matters during the winter and spring of 1925, the War Department initiated measures to obtain definite information on which sound conclusions could be based. During the summer an extended program of anti-aircraft firings at targets towed by airplanes was held at Fort Tilden, Long Island, these firings being by day and by night, with 3-inch guns for distant targets and machine guns for low-flying targets.

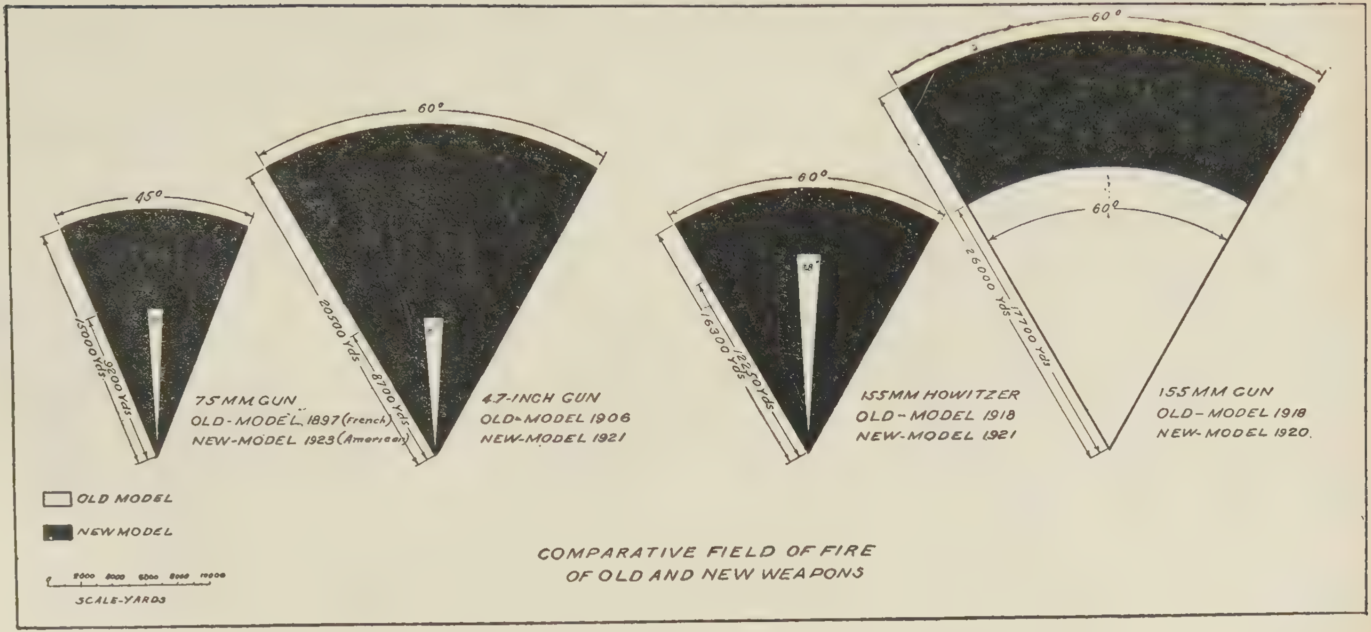
The following results were obtained with the 3-inch guns.

Number of shots fired	4,343
Number of hits	203
Shots per battery (4 guns) per minute	43
Hits per battery per minute	2.03
Percentage of hits	4.6

The guns and the ammunition used during the Fort Tilden test were of war manufacture, far inferior in range and accuracy to guns which since have been designed and tested. The improvement shown to have taken place is due in the main to improved range findings, apparatus and methods.

ORDNANCE DEPARTMENT

This branch of the service (Major General Clarence C. Williams, Chief) is charged with development, maintenance, preparation and supply of ordnance materials. During the year, 24 officers graduated from the Ordnance School at Watertown, Mass., and 31 enlisted men from the Specialists' School. Two ordnance officers were detailed to the plant of Holt Mfg. Co., Stockton, California, and one other to the offices of E. I. Dupont De Nemours and Co., Wilmington, Del., for the purpose of familiarizing themselves with the work of civilian plants and of allowing the heads of those establishments to gain a knowledge of the wants of the army. Plants for the prompt and efficient utilization in war have been the subject of constant study in the Ordnance office, since it was clearly demonstrated during the World War that the decentralization of contact with industry through procurement districts was vital to successful operation of ordnance activities. The district system has been revised and has been in operation for nearly three years. Fourteen procurement districts have been organized, each with a permanent, local civilian as chief and a Regular Army officer as executive assistant. Each district has been engaged in surveying manufacturing plants, placing tentative orders for material with these plants and supplying information to prospective contractors, the response being encouraging and the interest keen. The Browning machine gun, calibre 50, was approved as an anti-aircraft weapon. Machine rifles, pistols, divisional, corps, and army artillery, especially the railway and seacoast weapons, and tractors and reconnaissance vehicles have been signally improved. A noteworthy achievement was the development of X-ray in the investigation of steel and other metals as an outstanding feature of the year. Not only is the composition and structure of metals by this means understood but defects are located and discovered which would not otherwise be visible. The matter has already been taken up by commercial concerns and should be a valuable addition to scientific industry. Other researches at the Picatinny Arsenal, especially in propel-



COMPARATIVE FIELD OF FIRE OF OLD AND NEW WEAPONS lant powders in conjunction with the Dupont Company, have resulted in some very marked advances in explosives. In addition, considerable research work as to the flight of bombs dropped from aircraft has been undertaken in connection with tests of these bombs.

ARMY AËRONAUTICS

By Major W. A. Ganoe, U. S. A.
Historical Division, Army War College

Service to General Aeroplaning.—The Air Service (Major General Mason M. Patrick, Chief), working in coöperation with the Navy, the National Advisory Committee for Aeronautics, the Post Office Department and the Bureau of Standards, has not only contributed signally to the healthy infancy of the comparatively new science of flying, but has been of great benefit to industry in general. In conjunction with the Information Division, the Engineering Division of the Service has in the past five years collected, digested and disseminated to the public a tremendous amount of technical data; and has aided in the perfection and standardization of nomenclature, of mechanical processes, of methods of analysis of designs, and of procedure in the static and flight test of complete airplanes. The Engineering Division has prepared a *Designers Handbook*, a *Book of Standards* and a series of *Specifications* which, while intended primarily for the use of manufacturers dealing directly with the army, have come to be looked upon throughout the field of aviation in this country as the most valuable works now extant on the subject. These, together with *Information Circulars* and other technical publications prepared by the Air Service, are used either as text books or references in nearly all universities where courses in aeronautical engineering are given. Many of them are in demand for similar purposes in foreign countries.

The Air Service furnishes to school boys information on the construction of models and gliders; to older children material for study and debate on aeronautical subjects; to journalists aerial photographs from the files of the Army Air Service; to inventors (no matter how radical or impracticable may seem their ideas) sympathy, interest and advice; and to builders assistance and guidance in the great task of perfecting types of planes and engines suited to the many purposes for which aircraft may be advantageously employed. Probably in no other field does the Air Service exert a stronger influence toward the perfection of commercial aviation, than in that more or less intangible one of information and education.

The Army does not limit itself in this great work to the dissemination of advice, theories and formulae. It has devoted much time and effort to practical demonstrations and has developed many of the most progressive and important items of equipment. The parachute developed by the Army Air Service is used throughout the United States by civilian as well as military fliers, and has been adopted by the Canadian Air Force and by the Royal Air Force of Great Britain. Since its perfection, no instance of malfunctioning has been recorded, and many lives have been saved as a direct result of its use.

The supercharger developed by the Army Air Service has greatly improved the range and climbing ability of aircraft and is now being applied with great promise to truck and motor vehicles operating habitually at high altitudes. As commercial airplanes differ from military only in the matter of armament and in the modification of performance characteristics, the application of navigation instruments and of other equipment and accessories perfected by the Army to civil aircraft is immediate. The Alaskan Flight, the Porto Rican Flight, the Non-stop Transcontinental Flight, the Dawn to Dusk Transcontinental Flight, the Round the

World Flight, the annual International Air Races, and many others have been conducted by the Army Air Service to demonstrate the capabilities of aircraft, to promote confidence in air travel and to stimulate design competition. With our entry into the World War the Air Service Engineering Division at Dayton, Ohio, laid the foundations for a sound and progressive aeronautical engineering policy, to which more than to any other single influence may be attributed the standing of this country in the world of aviation to-day. Since the development of airplanes is a long and tedious process, involving painstaking research and exhaustive inquiry into new and unexplored fields, the design and construction of aircraft must necessarily be attended by many costly mistakes. Considerable sums must be devoted to experiments which when completed may prove to be fruitless except as an indication of what not to do. The vast aeronautical industry built up during the war disappeared almost completely after the armistice.

Service in Forest Fires.—During the summer of 1919 the Secretary of War, at the request of the Secretary of Agriculture, authorized the establishment on an experimental basis of aerial forest fire patrols by the Army. In 1920 an appropriation by Congress of $50,000 made possible the improvement and expansion of this service. As a result in that year Army airplanes flew a total of 476,085 miles over nine patrol routes in Washington, Oregon and California. Of 1,338 fires occurring in all National Forest Preserves of California during July, August and September, the air patrol reported 772. Since much depends upon the early determination of the existence and of the exact location of fires, the airplane, through its speed and ability to cover otherwise almost inaccessible areas, proved to be of great value in this work. No doubt these results would have been greatly exceeded had it been possible to continue operations on the same scale for several years more. Unfortunately the appropriations for the purpose since 1920 have been greatly reduced and the shortage of commissioned personnel together with the heavy demands of the summer training period have made it impossible for the Air Service to take the same active part as in 1920. In 1925 ten DH 4B planes with necessary equipment were furnished by the Army and were flown on patrol by Reserve Officers paid from the funds of the Department of Agriculture.

Writing of the work of that part of the 9th Aero Squadron operating out of Mather Field during the summer of 1920, Paul G. Redington, Forester in charge of the California district, states that 33 per cent. of the 196 forest fires discovered and reported were accurately located. "And 'accurately,'" says Mr. Redington, "in this case means that these locations given us by the airplane fire patrols were all within one-fourth mile of the exact location as later determined by actual surveys on the ground.

"This record, when supplemented by the further facts that an additional 19 per cent. of the fires discovered were reported within one-half mile of their actual location, that 10 per cent. of the total numbers were discovered by the air patrol before the rangers knew they even existed, and that 42 per cent. or 83 of the fires were reported by radio, while the ships were in flight, demonstrates without a doubt that airplane fire patrol in California has been successful.

"Besides acting as lookouts to detect and report fires, airplanes were used this year to direct fire fighting operations and to patrol fire lines which have been established, but which needed watching to see that the flames did not get beyond control. The case of the Mill Creek forest fire, on the Lassen National Forest, where 25,000 acres were burned over, is an example. Here a special reconnaissance plane, equipped with radio and with a forest officer for observer, hovered over the fire and actually directed the movement of bodies of fire fighters by wireless messages received right on the fire line. In addition this plane patrolled twice each day some fourteen miles of completed fire lines, from which all men had been removed. If reports from the air showed the line to be clear, the fire fighters were kept at work elsewhere, but if the observer wirelessed in that the fire had broken away, then a force of men was rushed to the spot and the fire corralled again."

Miscellaneous Service.—In conjunction with the Department of Agriculture the Air Service has carried out experiments which demonstrate the feasibility of employing airplanes for the control and extermination of insect pests. Successful campaigns have been waged in various localities against the gypsy moth, the boll weevil and against locusts. As a result, at least one manufacturer has constructed planes especially for this purpose and is entering upon the work with every expectation of continual and profitable employment.

On several occasions the Air Service has been able to avert impending floods by bombing ice jams.

Food and medical assistance have been carried by the Air Service in several instances to people at isolated, and otherwise inaccessible points. In one case the relief measures after a serious flood were expedited and made much more effective as a result of preliminary surveys by the Air Service.

The Air Service was the first in this country to undertake the systematic operation of aircraft over long aerial routes or airways—a thing done to demonstrate the practicability of aerial transportation, to inspire confidence in aircraft, to develop operational methods and to promote the establishment of a comprehensive system of airways. A Model Airway was established linking up the Army Fields at New York, Washington, Hampton, Va., and Dayton, Ohio. The Air Service has made efforts to improve the character of meteorological service by the Signal Corps and the Weather Bureau; to encourage newspapers to publish "Flying Forecasts"; to have towns and cities along the model airways and along all other proposed routes throughout the country establish municipal landing fields. Since railroads are prominent landmarks for aviators, the Air Service has asked a number of companies to place the names of cities and towns in large letters visible from the air, within their right-of-way areas. At its request chambers of commerce and like organizations have painted the names of their towns or cities in large letters on the roofs of prominent buildings.

During the year radio direction-finding has been perfected by the Air Service to the point where it is entirely practicable; experiments in fog-dispelling have been conducted; path-finding expeditions have covered practically the entire area of the United States, looking to the selection of the best possible aerial routes; a special aerial map, perfected through the coöperation of the Engineer Corps, and covering the established air routes, is now in daily use by civilian aeronauts as well as military fliers.

Photographs have been made through the country of unusual geological formations, of historical sites and of an almost unlimited category of subjects otherwise inaccessible. Great numbers of Air Service photographs are used throughout this country and abroad for educational purposes.

Services to Other Departments.—The Air Service prepares, and through the Government Printing Office, distributes to the public a series of Aeronautical Bulletins, which give photographs or topographical sketches together with other pertinent information such as prevalent wind direction, of every organized airdrome in the country as well as of hundreds of emergency landing fields.

Upon the establishment of the Air Mail Service the Air Service placed at the disposal of the Post Office Department all available information on the subject of airways, airdromes, equipment, landing lights, beacons and flares. Technical advice on the design of planes suitable for mail service was given, an experimental plane was sand-tested and another has recently been fully equipped at McCook Field for radio direction flying. The Air Service in coöperation with the Engineering Corps, with the Eastman Kodak Co., and the Fairchild Aerial Camera Corp., has developed the best known aerial cameras and has perfected the process of developing and printing to a remarkable degree.

Thousands of square miles have been photographed by the Air Service for the Engineer Corps and for the Geological Survey.

MILITARY AND NAVAL PENSIONS

By Winfield Scott

Commissioner, U. S. Bureau of Pensions

DISBURSEMENTS

The annual report of the Commissioner of Pensions to the Secretary of the Interior shows $217,150,612 paid out for pensions in the fiscal year of 1925, as compared with $229,994,777 during the fiscal year of 1924. The cost of maintenance and expense of the pension system in 1925 was $1,489,087.

The number of pensioners on the roll June 30, 1925, was 512,537 as against 525,539 on June 30, 1924. Of those on the roll 126,566 were Civil War veterans; 241,193, Civil War widows; 101,702, Spanish War veterans; and 18,363, Spanish War widows. There are yet seventeen soldiers of the Mexican War and twenty-one widows of soldiers of the War of 1812 in receipt of pension. On account of service in various Indian Wars, 3,924 soldiers and 3,034 widows were on the roll. For disabilities of service origin, 12,399 soldiers were in receipt of pension, and for deaths of soldiers due to service causes, 3,762 widows, minors, and dependent relatives were on the pension roll.

By classes at the close of the fiscal year there were on the pension roll 244,657 soldiers, 260,382 widows, 2,281 minor children, 883 helpless children, 4,105 dependent relatives, and 229 nurses.

The total disbursements to pensioners under the pension system, which dates from 1790, have been to the close of this fiscal year $7,053,502,010, of which $6,613,314,980 have been paid out on account of the Civil War, and $151,771,860 on account of the War with Spain. The total number of claims allowed under the pension system has been 6,566,454, of which 5,409,210 were claims of soldiers and 1,157,244 claims of widows, minor children, and dependent relatives of soldiers.

NUMBER OF PENSIONERS

The number of pension certificates issued during the past fiscal year was 64,193 of which 27,804 were for Civil War service and 34,075 for Spanish War service.

Of the 512,537 pensioners on the roll on June 30, 1925, there were 508,244 residing within the confines of the United States, 29 in the Canal Zone, 1,405 in our insular possessions, and 2,859 in foreign countries.

The net loss to the pension roll for the past fiscal year was 13,002. The roll of Civil War soldier pensioners was reduced by 20,182, and of Civil War widow pensioners by 11,943. These losses were largely offset by a gain of 16,664 to the Spanish War soldier roll and of 2,259 to the Spanish War widow roll.

During 1925, there were 163,571 claims before the bureau for action, of which 120,809 were disposed of, leaving 44,762 pending on June 30, 1925. Of the claims disposed of, 38,580 were based on Civil War service, and 59,031 on Spanish War service. In the past four years 526,361 claims for pensions have been disposed of.

The number of checks prepared and mailed in the past fiscal year was 6,429,998, carrying an aggregate of $226,634,205.14 in payment of pensions, annuities, refunds, and fees of examining surgeons.

CIVIL SERVICE PENSIONS

The Bureau of Pensions is charged with the administration of the act of May 22, 1920, providing for the retirement of persons within the classified civil service.

The Commissioner's report for the fiscal year of 1925 shows that there were before the bureau for action 41,598 claims of all classes under the Retirement Act. Of these 40,451 were disposed of, leaving 1,147 pending on June 30, 1925.

The civil service retirement and disability fund on June 30, 1924, amounted to $33,586,193.19. During the year the fund was increased by $17,905,070.98, deducted from the salaries of civil service employees, and by $2,123,796.71, interest, profits, and miscellaneous receipts. There were disbursed for annuities $6,235,830.16, and for refunds $2,713,452.16, a total of $8,949,282.32, leaving a surplus in the fund on June 30, 1925, of $44,665,778.56.

The number of annuitants on the roll, June 30, 1925, was 11,689 as against 10,548 on June 30, 1924. Of those on the roll, 9,741 have been retired for age and 1,948 for disability. The number dropped on account of death during the year was 893.

The work of the Retirement Division of the Bureau is practically current, claims being promptly disposed of upon receipt of the information necessary to their settlement.

Under the terms of the Retirement Act, 2½ per cent. has been deducted since August 1, 1920, from the salary of each employee to whom this act applies. The "civil service retirement and disability fund" has received from this source $73,907,481.21 and this sum has earned in interest and profits from investments $5,349,620.05, making the retirement fund total $79,257,101.26 to the close of the fiscal year of 1925. Out of this fund $23,671,103.08 have been disbursed for annuities and $10,920,219.62 in refunds to persons whose services with the Government have been terminated, making the total disbursements from the fund $34,591,322.70 to June 30, 1925. The retirement fund at the close of the fiscal year of 1925 amounts to $44,665,778.56.

EDUCATIONAL FEATURES

The chief functions of the Bureau of Pensions are the adjudication of claims and the payment of pensions granted under the laws providing pensions on account of military or naval service to the United States, and the administration of the laws making provision for the retirement of civil service employees. In addition the bureau maintains certain educational activities.

The large number of claims filed in the bureau made it necessary to evolve a scheme by which any one of them might readily be located. To meet this necessity a card record system was adopted believed to be as nearly perfect as can be established when dealing with records of such immense magnitude.

The method of disbursement of pensions, whereby approximately 600,000 checks are prepared, scheduled, pouched and mailed each month in time to reach their various destinations for delivery on the fourth day of the month, has been studied by those having to deal with disbursements on a large scale, or with mailing problems of great magnitude.

The files of the Pension Bureau, especially the Revolutionary War, War of 1812, and Mexican War files of claims have become a storehouse of historical data and are consulted by thousands engaged in historical and genealogical research work, either general or personal in character, the millions of claims based on Civil War service and the hundreds of printed volumes in the bureau library dealing with the Civil War yearly attracting students of history in steadily increasing numbers.

In the administration of the laws for the retirement of classified civil service employees much has come into the bureau as to retirement and annuity systems operated by municipalities, states, governments, and large corporations which is serviceable to students of social economy and public welfare.

UNITED STATES VETERANS' BUREAU

By Frank T. Hines
Brigadier General and Director of U. S. Veterans' Bureau

Relief Work Extended.—During the past year the system of relief for veterans of the World War has been characterized not only by increased activity in the adjudication of death and disability compensation claims, and in the hospitalization of veterans, but also in the field reorganization of the United States Veterans' Bureau. This increased activity was a direct result of the World War Veterans' Act of June 7, 1924, which consolidated, codified, revised, and reenacted the laws affecting the establishment of the United States Veterans' Bureau, and the administration of the War Risk Insurance Act, as amended, and the Vocational Rehabilitation Act, as amended; and through its liberalizing features admitted for benefits many thousands of cases not eligible for benefits under prior legislation, increased benefits for many others, and permitted the decentralization of case action from the fourteen district offices to fifty-four regional offices, these latter being established in each state with the exception of Delaware.

The relief activities conducted by the United States Veterans' Bureau during the past twelve months comprise: (a) the providing of hospitalization and out-patient medical care to disabled veterans; (b) the rehabilitation of disabled veterans who suffered a vocational handicap as a result of service; (c) the adjudication of claims for compensation filed by disabled veterans, or dependents of disabled veterans; (d) the maintenance of insurance records of all veterans who have applied for insurance and are maintaining premium payments thereon, and the adjudication of all claims filed by the insured or his, or her, dependents as a result of permanent total disability or death; and (e) the dispensing of benefits under the World War Adjusted Compensation Act.

Hospital Service.—Disabled veterans with any degree of disability resulting from service are given such medical, surgical and hospital care, and such supplies and appliances, as may be determined to be reasonably necessary and useful. All hospitals of the Bureau are also available for every honorably discharged veteran of the Spanish-American War, the Philippine Insurrection, the Boxer Rebellion, or the World War, suffering from neuropsychiatric or tubercular ailments and diseases, paralysis agitans, encephalitis lethargica or amœbic dysentery, or the loss of the sight of both eyes, regardless of whether such ailments or diseases are due to military service or otherwise. Hospitalization and necessary traveling expenses are authorized to be furnished to veterans of any war, military occupation or expedition since 1897 not dishonorably discharged, without regard to the nature or origin of their disabilities, in so far as existing Government facilities permit, preference being given to those unable to pay such expenses.

The following table shows the classification of patients of the U. S. Veterans' Bureau in all hospitals:

	In Government Hospitals	*Civil and State Hospitals*	*Total*
Tuberculosis	8,060	1,248	9,308
Neuro-psychiatric ...	9,878	2,643	12,521
General and Surgical	4,889	147	5,036
Total	22,827	4,038	26,865

The number of admissions to hospitals during the past twelve months was 69,185, and a total of 8,307,817 days of hospital relief have been furnished. The total number of treatments given to patients outside of hospitals was 1,154,537, and the examinations made numbered 1,036,124. Ninety-two Government hospitals are being utilized, in which the total number of beds available is 30,568. Of the above hospitals fifty-one, with a bed capacity of 20,800, are under the immediate jurisdiction of the Veterans' Bureau.

Hospital Construction.—Since January 1, 1925, two new Veterans' Hospitals have been completed, furnishing 520 beds for tuberculosis patients, and at the present time there are under construction two new hospitals which will furnish 325 beds for neuropsychiatric cases and 234 tuberculosis beds, these hospitals to be opened for the reception of patients on March 1, 1926. 159 additional beds for tuberculosis patients are being added to the Government plant at Hot Springs, South Dakota, and bids have been requested on a new 400 bed general hospital for Minnesota. To date there has been authorized for hospital construction a total of $64,595,000, under which authority $51,595,000 has been actually appropriated.

Vocational Training.—Vocationally handicapped veterans who served in the armed forces of the United States from April 6, 1917, to July 2, 1921, and who made application therefor before June 30, 1923, who deserved and were in need of retraining, have been or are being given vocational training. The number of trainees rehabilitated or who have completed a course of training is 114,029. During the past twelve months 22,339 veterans were rehabilitated or completed a course of training. Rehabilitated men are placed in gainful employment through the coöperation of service men's organizations, labor organizations, Chambers of Commerce, Rotary Clubs, and by contracting firms employing especially trained men. The total reported unemployed, on whom the Veterans' Bureau maintains a follow-up, on December 1, 1925, was 3,758. Because of legislative provisions no new trainees may be entered in training after June 30, 1925, and vocational training will not be continued to any one after June 30, 1926. The following table shows the number of trainees in training, by type of training, as of December 1.

	Agricultural	*Commercial*	*Professional*	*Trade and Industrial*	*Total*
Institutional	339	955	2,185	409	3,888
Placement	477	1,217	366	5,836	7,896
Project	2,246				2,246
Correspondence	41	311	90	229	671
Tutorial		3	39		42
Total	3,103	2,486	2,680	6,474	14,743

Claim Adjustment.—Compensation is awarded for death and disability resulting from personal injury received, or disease contracted, in the military or naval service on or after April 6, 1917, and before July 2, 1921, or for an aggravation or recurrence of a preëxisting disability incurred during or as a result of such military or naval service.

The number of claims for compensation received during the past twelve months was 40,399. The total of all compensation claims received was 1,014,810, of which only 10,363 have not been adjudicated. Of the total adjudicated there has been a total of 505,063 awards for death and disability. The number of claims on which payments were being made was 293,404, including 220,970 disability cases and 72,434 death cases. Frequent readjudications of claims are made because of appeals or the submission of additional evidence. The total number of adjudications made during the past twelve months was 507,277. Monthly disbursements for this purpose approximated $12,500,000.

Government Life Insurance.—This is granted to service and ex-service men applying therefor within the stipulated time. This insurance is issued in the following forms: Yearly Renewable Term Insurance and U. S. Government Life Insurance, which latter may be had in any of the following forms: Ordinary Life, 20-Payment Life, 30-Payment Life, 20-Year Endowment, 30-Year Endowment, and Endowment at age of 62. Under the present law all term insurance must be converted into some form of U. S. Government Life Insurance before July 2, 1926. The following statement indicates the number of men carrying government insurance and the amount of insurance in force:

	Number	*Amount*
U. S. Government Life Insurance:		
Ordinary Life..	69,217	$354,173,550.10
20-Payment Life	124,315	538,379,110.71
30-Payment Life	18,689	95,233,739.02
20-Year Endowment	106,324	302,414,702.03
30-Year Endowment	26,831	111,197,517.72
Endowment at Age of 62 ...	22,485	109,727,402.43
Extended Insurance	16,999	39,087,823.67
Total U. S. Government Life Ins.	384,860	$1,550,213,845.68
Yearly Renewable Term In- Insurance ...	162,851	1,265,754,520.00
Grand Total Insurance in Force.	547,711	$2,815,968,365.68

Any person in active service on or after April 6, 1917, and before November 11, 1918, who died or became permanently disabled without having applied for insurance is considered to have applied for and been granted insurance. The benefits of such insurance are payable in installments of $25.00 per month so long as the beneficiary remains permanently and totally disabled, or, if deceased, to his dependents for not more than 240 months. This form of benefit is known as automatic insurance.

The total number of claims awarded on account of Yearly Renewable Term and Automatic Insurance was 167,348, having a value at date of award of $1,454,979,753.08. During the past twelve months 4,664 awards, having a value of $31,287,413.31, have been made. A total of 6,819 awards, with a value of $29,316,331.53, have been made on U. S. Government Life Insurance claims, of which 1,582, amounting to $7,230,774.68, were made during the past twelve months.

World War Adjusted Compensation Act.—This act was passed by Congress May 19, 1924, and authorized the payment of adjusted compensation to all veterans below the rank of Captain in the Army and similar rank in the Navy, Marine Corps and Coast Guard. Applications were first received from the War and Navy Departments in September, 1924, and to date there have been adjudicated 3,003,826 applications, which are classified as follows:

	Army	*Navy*	*Marine Corps*	*Total*
Cash Payments:				
Veterans				
$50 or less..............	$ 92,069	$ 5,674	$ 347	$ 98,090
Dependents				
$50 or less..............	1,526	110	19	1,655
Over $50................	28,449	3,052	818	32,319
Total Cash Payments.........	$ 122,044	$ 8,836	$ 1,184	$ 132,064
Insurance Certificates.........	2,483,304	335,948	52,510	2,871,762
Total	2,605,348	344,784	53,694	3,003,826
Value of Certificates..........	$2,538,973,182	$368,588,465	$58,351,485	$2,965,913,132
Value of Cash Payments......	3,090,782	159,312	12,216	3,262,310
Value of Dependents' Awards..	10,485,013	1,297,151	338,446	12,120,610
Total	$2,552,548,977	$370,044,928	$58,702,147	$2,981,296,052

The total of all disbursements made by the Veterans' Bureau is $3,243,169,304.70. Those made during the past twelve months are classified thus:

Administrative	$ 43,448,129.64
Compensation	143,985,689.14
Insurance	128,017,255.78
Vocational Training	45,808,214.09
Medical and Hospital Services	29,701,852.79
Hospital Facilities and Services (construction)	3,648,643.79
Administrative Expenses, Adj. Comp. Act, 1924-25......	835,105.80
Adjusted Service Certificate Fund	10,917,809.00
Adjusted Service and Dependent Pay	5,218,452.72
Miscellaneous	23,975.13
Total	$411,605,127.88

SPECIAL FUNCTION OF THE UNITED STATES ARMY

By William Addleman Ganoe
Major U. S. A., Historical Division, Army War College

ENGINEERING SERVICE

Corps of Engineers, U. S. Army (Major General Harry Taylor, Chief).—Besides its military functions, the Corps is charged with important civil ones, embracing the improvement and maintenance of the navigation channels in ports, rivers, and other internal waterways, in so far as they are under improvement by the Federal Government, and with the administration of Federal laws for the protection and preservation of navigable waterways of the United States.

Territory.—For this purpose the country is divided territorially into 10 divisions, subdivided into 43 districts, each division and district under an engineer officer. The number of works in hand at the beginning of the fiscal year 1925 embraced the improvement of 199 harbors, 284 rivers and 53 canals and other waterways. With the exception of a few State or privately owned canals, of which the New York State Barge Canal is the most notable, the undertaking covered all navigable channels of the United States on which commerce moves. The total amount of money spent on our harbors and waterways has been slightly in excess of $1,300,000,000 and present expenditures for this purpose now amount to between 60 and 70 millions annually. The force under the Corps of Engineers, employed on this work, embraced some 25,000 to 30,000 employees, exclusive of the number employed by contractors. The work was done both by contract and by day labor, the day labor method being used only when it is cheaper than the former. The Department necessarily operated large numbers of dredges, snagboats, barges, and a considerable amount of construction plants.

Rivers.—Important construction work during the year included: the continuation of work on the Ohio River, which now provides 576 miles of canalized river out of a total length of 968 miles, and will be completed in 1928 or 1929; the work on Wilson Dam which progressed far enough to permit the delivery of hydroelectric power; the placing of over 27,000,000 yards of earth in the Mississippi River levee system; the dredging of more than 150,000,000 yards of material, which included nearly 1,000,000 yards of rock and coral, for the maintenance and improvement of the channels in our seaports and rivers; besides such work as breakwater construction, removal of snags, and much other miscellaneous work.

Waterways.—In connection with the administration of Federal laws for the protection and preservation of navigable waterways of the United States, plans and maps of location of 252 bridges were approved after examination concerning their effect upon the interests of navigation. Action was taken on 2,940 applications for permits for various classes of structures and operations in navigable waters. One hundred and twenty-one sunken vessels which were obstructions to navigation were removed. Rules and regulations governing the use and navigation of navigable waters were promulgated.

Officers of the Corps of Engineers are charged by the Secretary of War with the operation and maintenance of the Panama Canal; the improvement and maintenance of the water supply of the District of Columbia; the construction, maintenance, and care of public buildings and grounds in the District of Columbia; surveys and charts of the Great Lakes, and the preservation of Niagara Falls.

Alaska Board of Road Commissioners, composed of officers of the Corps of Engineers, lays out, constructs and maintains wagon roads and pack trails in Alaska. Up to June 30, 1925, it had constructed 6,465 miles of permanent trails, 1,472 miles of wagon road, 1,086 miles of sled road; $8,911,714.97 have been expended on this work.

Engineering Positions.—Officers of the Corps of Engineers are filling other important government positions, among which are: Governor of the Panama Canal; American members of the Joint Board of Engineers on the St. Lawrence River project; Consulting Engineers with the American St. Lawrence River Commission; Engineer Commissioner of the District of Columbia; Military Aide to the President; and Chief Engineer of the Federal Power Commission. [See Waterways and Harbors; Inland Waterway and Coastwise Commerce; and Foreign Commerce.]

MILITARY DUTIES OF ENGINEERS

These include surveying and map-making, procurement and supply of equipment and material for engineer work, training of engineering elements of the army, planning, construction and maintenance of fortifications and the development of engineer equipment. The Corps not only maintains an efficient surveying and map-making personnel available in a national emergency, but in so doing covers annually many square miles of country which would otherwise remain unmapped. The army engineer works where other Federal mapping agencies are unable to, largely along the strategic frontiers where funds for local coöperation in such matters are lacking. At the Engineer Reproduction Plant, Washington Barracks, D. C., maps of these areas are lithographed for general distribution. In the Relief Modeling Department of this Plant, as well as lithographic work, economical services are performed for many branches of the government. The Chief of Engineers must meet certain supply needs of all army branches, not only for normal times but national emergencies as well. In a crisis this equipment will run from high-power locomotives and gigantic cranes through to Swiss watches and thumb tacks. Five Engineer Depots are maintained in the United States and one each in Panama, Oahu and the Philippines. All Regular Engineer troops, consisting of three regiments, three battalions and three separate companies in the United States, with three regiments (less one battalion) abroad, conducted surveying, road and trail work, bridge building, general construction and repair, and innumerable other tasks. That their military efficiency has not fallen off is shown by the fact that in the National Rifle Matches at Camp Perry in the fall of 1924, they won the highest prize—the National Trophy, as well as three other important trophies. The Engineer School is located at Fort Humphreys, Va., on the old Fairfax estate, where the young George Washington got his first training as a surveyor and engineer. Courses of instruction are carried on there for Regular, National Guard and Reserve officers, and for selected enlisted men as for other branches.

Engineer Reserve Units.—Steady progress is being made in the organization and training of such units, especially in the Railway Battalions assigned to the principal railroad organizations of the country. With these Reserve units some 34 Regular Engineer officers are working in executive capacity, in addition to their other duties.

PROPERTY AND CLAIMS

War Claims.—Since the records of the former War Department Claims Board, the Board of Contracts Adjustment and the Board of Appraisers, which were the agencies created by the Secretary of War to adjust claims arising out of the suspension of war contracts at the close of the war, have come into the custody of the Judge Advocate General, a section of the Department prepared the data for use by the Department of Justice in the settling of such claims. One thousand one hundred and eleven suits have been filed in the Court of Claims and in the United States District Court involving more than $26,000,000, most of which arose out of war-time conditions. In addition to this class of cases twenty-four admiralty suits involving $655,000 have been filed and are being handled in this Department, with great saving to the government.

Another section prepared legal opinions, on claims of various character, both for and against the War Department. For the four-year period ending 1925, legal opinions were expressed on approximately 4,000 such claims, varying in amount from a few dollars to several million dollars each, most of these claims being for violations or breaches of ordinary peace-time War Department contracts.

Real Estate.—Another section of the Department is charged with legal supervision over the real property under the control of the Secretary of War: 1,500,000 acres of land scattered in practically every state in the Union. Questions of title, leases, licenses, rentals, easements, federal jurisdiction, taxation, riparian rights and numerous similar questions have constantly arisen to furnish this section with knotty problems which must be settled from the standpoint of the government of the United States.

Patents.—The patents section of the Department has obtained patents upon inventions submitted by War Department personnel, has handled all such proceedings in the Patent Office, has drawn contracts involving patent rights and licenses, and has advised the War Department in the administrative handling of all matters involving the patent laws. Among the matters it is handling administratively may be mentioned the arbitration of patent royalties upon the government's vast investment at Muscle Shoals, in which case it has been acting as counsel for the United States. Its primary function, however, is preparing the government's defense in all patent actions brought in the Court of Claims and United States District Courts where the War Department is involved, the evidence prepared being turned over to the Department of Justice for presentation to the court. Judgments against the United States have been obtained by claimants in eleven cases only, the aggregate amount being approximately $800,000.00. At present the section is preparing the defense in 60 court cases, still pending, which involve claims aggregating approximately $650,000,000.00. One hundred and fifty court cases involving over $600,000,000.00 have already been successfully defended, the saving to the government being apparent.

QUARTERMASTER CORPS

This army department store (under Major General W. H. Mart, Quartermaster General) furnishes subsistence, food, clothing, shelter and transportation to the soldier. It handles under the head of subsistence 175 items; under clothing, everything that the soldier wears, from the furs of Alaska to the white of the tropics; under shelter, barracks, quarters, tentage and storage space; under transportation, movements by rail, water, motor and animal, the last sub-division including dog teams of the Alaskan north and the carabao of the Philippines. During the fiscal year ending June 30, 1925, appropriations for quartermaster purposes amounted to $74,059,152.54, leaving at the end an unexpended balance of $2,171,526.04 and an approximate net saving of $224,579.95. Both for peace-time purposes and for readiness for any emergency the Quartermaster Corps carried on during the year a continuing investigation of the material resources and manufacturing facilities of the country. The "Quartermaster Winter Plattsburg" training exercises in Quartermaster and logistical work similar in general outline to the original Plattsburg movement, rose to the number of 32 throughout the country, with approximately 4,000 Regular Army, National Guard and Reserve officers participating in the problem. By closing certain motor transport plants and general sales stores, and by other changes as in the transport service, the Quartermaster General made decided savings for the government. For the ocean-going transports plying between New York, Porto Rico and the Canal Zone, between the east and west coasts, and between San Francisco, Honolulu, China and the Philippines, there was a total cost of $3,581,241.92. Had the same business been done by commercial lines, the cost would have been $7,011,954.85, the saving thus being $3,430,712.93. The average cost of a ration for the fiscal year 1925 was $.3094 as compared with $.3165 for 1924. Laundry service was furnished the enlisted man at an average cost of $1.75 per month per man. The Corps, in addition to its military duties, operated 84 national cemeteries throughout the country, 5 large national parks, maintained 8 large cemeteries in Europe, finished the return in 1925 of 46,300 bodies from France and recovered, since January 1, 1925, the remains of 73 American soldiers from isolated graves.

SERVICE TO THE COMMUNITY

On March 18, 1925, areas in Illinois, Indiana, Missouri and Kentucky were made homeless by a tornado which swept that part of the country. Adjutant General C. E. Black of Illinois called on the Commanding Officer of the Chicago Quartermaster Intermediate Depot, Colonel Clyffard Game, for aid in the emergency. As in many previous calamities of flood, fire and the like, the Quartermaster Corps came to the rescue by supplying 1,000 tents, 4,000 beds, 4,000 pillows, 4,000 pack sacks and 12,000 blankets to the stricken district. It sent 500 tents a few days later. This prompt action on the part of the Quartermaster Corps was the subject of a letter of appreciation from Governor Small of Illinois. The St. Louis and Jeffersonville Depots of the Quartermaster Corps also rendered assistance in this emergency, although on not such a large scale as the Chicago Depot.

Bureau of Insular Affairs (Major General Frank McIntyre, Chief) concerned itself particularly during the year with the Philippines, Porto Rico, Haiti and Santo Domingo. In the Philippines the progress has been orderly. The total of imports and exports for the calendar year 1924 amounted to $243,000,000. During the sugar year, 1924-25, owing to the comparatively recent construction of modern sugar mills, the estimated production of centrifugal sugar was 483,000 metric tons.

Porto Rican Service.—The Chief of the Bureau, in his visit to Porto Rico in the month of August, 1925, his first visit since 1920, noted material progress in every field of governmental and private activity, the most noticeable being the erection of necessary public buildings and the extension of the splendid highway system. The serious problem of excess population, to a slight extent, is being met by the gradual development of small industries. In Haiti, which was visited at the same time, a marked element of the present prosperity is due to the funds brought back by Haitian laborers returning from Cuba and Santo Domingo. However, one crop produced in Haiti brings as much money into the Republic as do these returning laborers.

Dominican Receivership.—At the request of the Department of State, the Bureau organized a personnel that went to Santo Domingo for the purpose of administering the receivership of the island. The work met with an unprecedented absence of friction, and the Dominican Republic received the advantages flowing from the adjustment of its indebtedness, which had been the source of controversy with foreign governments, with its own citizens, and with foreign residents of the Republic. Its customs service was promptly reformed and placed on an efficient basis. Smuggling, hitherto rife, was promptly suppressed. The financial success of the receivership was such that in 1920 a revision of the tariff was made materially reducing duties and practically abolishing the export tax. Notwithstanding the reform and reduction in the tariff, the success of the receivership has so far exceeded anticipations that it almost accomplished in 1925 what had been planned for the 50 years of its contemplated existence.

Panama Canal, while not a part of the War Department, is under the personal supervision of the Secretary of War. Its Governor is appointed by the President, by and with the consent of the Senate, the present incumbent being Colonel Meriwether L. Walker, Engineer Corps, U. S. Army.

From the opening of the Canal to commerce on August 15, 1914, up to June 30, 1925, a total of 29,705 commercial vessels have been transited with a total Panama Canal net tonnage of 123,675,548. These vessels carried 131,869,827 long tons of cargo, and paid $119,203,341.97 in tolls. The total transit revenues of the Canal to above mentioned date, including tolls, taxes, licenses, fees, postal receipts, etc., amounted to $121,327,975.46. The net expenses totaled $78,086,461.05, leaving a net surplus of $43,241,514.41. In addition, the business operations of the Canal, comprising the furnishing of various services and supplies to outside interests, mainly to shipping, showed a net surplus of revenues over expenses amounting to $4,231,752.17.

The Panama Canal did less business during the fiscal year 1925 than during 1924, a record year. The number of commercial vessels in transit declined from 5,230 to 4,673, and the revenue from tolls fell from $24,289,603.16 to $21,374,664.12. This decline, which was anticipated, was due entirely to the slump in oil shipments from California. With oil excluded, however, the 1925 traffic showed a normal growth over 1924. The net revenues from Canal transit operations in 1925 was $13,465,924.72, and from Canal business operations the net revenue amounted to $765,916.85, as compared with $16,307,948.50 and $901,624.12 respectively for 1924.

MILITIA

Militia Bureau (Major General Creed C. Hammond, Chief), during 1925, handled the National Guard with a progressive development in all branches, especially in the routine administration of that component of the army. A school for state adjutants general was held from March 5-10, 1925; all adjutants general or representatives from practically every state, the officers in charge of National Guard affairs at corps-area headquarters and the senior instructors on duty with the National Guard were present. The mutual understanding of problems effected by personal contact resulted in added coöperation.

Militia Service.—Available National Guard troops were utilized in 15 states during the year to render aid in disaster and to assist civil authorities. That the system of promotion in the National Guard is well observed, is demonstrated by the fact that 3,520 cases of recognition in grades higher than 2nd lieutenant were acted upon during the year, 1,320 being by promotion. The loss in commissioned personnel continued to be large although no specific reason for this year's high rate is apparent. Of 10,898 officers on June 30, 2,338 are no longer on the active list, new officers taking their places. This turnover of 22 per cent. is not regarded as a loss, for, whereas the efficiency of the National Guard itself suffers, the training, no matter how elementary, is expended in wider degree upon the nation. On June 30, 1925, 6,256 officers in the National Guard held commissions also in the Organized Reserve, an increase of 554 over the previous year. The rapid growth of the National Guard during the fiscal year 1924, which on June 30 of that year reached a strength in excess of 177,000, made necessary the adoption by the War Department of a suspension policy in order to avoid a deficit in Militia Bureau funds. In spite of the restriction, the strength of the National Guard increased, reaching a peak of 189,722, September 30, 1924. From that date the strength decreased until May, 1925, when it was approximately 176,900. The training situation shows that the Air Service is the most advanced and Infantry the most backward in the National Guard. The slowness of the latter is due to the difficulty of bringing troops to the standard considered satisfactory. Its many phases of duty, its numerous weapons, its niceties of adjustment in the combination of personnel and weapons, its difficulties in the development of the leadership and initiative demanded of the lower grades, cause properly balanced teamwork to be beset with many obstacles. The staff of the commanding general of each corps area and the Hawaiian Department is provided with an officer in charge of National Guard affairs. During the fiscal year 1925, 276 officers and 65 enlisted men of the National Guard attended courses at the special service schools of the Regular Army.

CIVILIAN PERSONNEL DIVISION

This division, under direction of Assistant and Chief Clerk, J. C. Scofield, exercised administrative control in matters pertaining to civilian employees of the War Department and with the army. This task involved the administration of the Civil Service Law and Rules, the Reclassification Act, the Retirement Act, the Eight Hour Law, and the Employees' Compensation Act. This division also handled matters affecting the regrading of salaries and wages. The number of civilian employees affected by the foregoing laws in the Department and its field services at this time is 49,117. During the World War this force reached a strength of 251,624.

STATISTICS OF THE ARMY

RETURNS SECTION, ADJUTANT GENERAL'S OFFICE

STRENGTH OF THE REGULAR ARMY SEPTEMBER 30, 1925.

Branch	OFFICERS					ENLISTED MEN	
	Branch of Commission	Branch of Service	Reserve (Active Duty)*	Branch in which Serving	Emergency (Reconstruction)	American	Phil. Scouts
Infantry	3,716	2,477	5	..	..	41,779	2,332
Cavalry	1,043	623	..	..	..	8,695	694
Field Artillery	1,382	955	1	1	..	15,591	882
Coast Artillery Corps	1,001	724	2	2	..	12,216	1,442
Air Service	916	898	41	41	1	9,286	..
Corps of Engineers	498	381	1	..	..	4,807	325
Signal Corps	219	201	..	..	..	2,325	141
Quartermaster Corps	807	723	1	1	..	8,001	456
Finance Department	120	117	..	..	..	388	8
Medical Department	1,280	1,199	93	93	..	6,833	380
Ordnance Department	290	255	..	..	..	2,362	49
Chemical Warfare Service	83	80	1	1	..	437	..
Detached List	..	2,574	..	..	..	5,658	..
Adjutant General's Dept.	97	97	2	1	..	..	..
Inspector General's Dept.		39	1	..	..	..	..
Judge Advocate General's Dept.	94	83	1	1	..	..	..
Chaplains	123	123	..	..	..	..	..
General Officers	67	67	2	1	..	..	..
General Staff Corps	..	218†	..	8	..	..	..
Bureau of Insular Affairs	1	3	..	..	..	..	..
Military Storekeeper	1	1	..	..	..	..	..
Professors, U.S.M.A.	7	7	..	..	..	..	..
Philippine Scouts	100	..	..	..	..	..	..
Specialist	..	..	3	1	..	..	..
Militia Bureau	..	..	..	4	..	..	..
Military Intelligence	..	..	1	..	..	..	..
Totals	11,845	11,845	155	155	1	118,378	6,709
Retired on active duty	159	..	..	..	..	30	..
Warrant officers	1,021	..	..	..	..	..	..
Field clerks, Q.M.C.	161	..	..	..	..	..	..
Army field clerks	212	..	..	..	..	..	..
Cadets, U.S.M.A.	1,098	..	..	..	..	..	..

* Including only those assigned to active duty by War Department Orders.

† Including 52 officers on duty with G.S., and not detailed.

DISTRIBUTION OF THE REGULAR ARMY

(Compiled from monthly Strength Report and from Returns)

Corps Area and Dept.	Troops Under Jurisdiction of CG of Corps Area or Dept.		Troops Within Corps Area or Dept. but Exempted from Control of CG		Grand Total Troops within Geographical Limits of C. Area (Total of Cols. 1 & 2)		
	Off.	Enl.	Off.	Enl.	Off.	W'r'nt Off.	Enl.
1st Corps Area	444	4,144	82	89	526	64	4,233*
2nd Corps Area	678	9,345	416	2,160	1,094	117	11,505†
3rd Corps Area	518	4,747	525	4,459	1,043	100	9,206
4th Corps Area	583	5,954	566	4,650	1,149	75	10,604
5th Corps Area	385	3,499	111	85	496	77	3,584
6th Corps Area	413	4,212	131	1,239	544	58	5,451
7th Corps Area	438	3,606	589	2,978	1,027	67	6,584
8th Corps Area	1,148	15,718	634	5,301	1,782	138	21,019
9th Corps Area	864	10,878	133	849	997	125	11,727‡
Dist. of Wash.	128	2,028	936	2,055	1,064	53	4,083
Total in U. S.	5,599	64,131	4,123	23,865	9,722	874	87,996
West Point Cadets	..	..	..	..	..	..	1,098§
Hawaiian Dept.	798	14,109	..	..	798	45	14,109
Panama Canal Dept.	431	8,041	30	..	461	49	8,041
Alaska	18	307	..	..	18	4	307
Porto Rico	41	1,094	1	..	42	4	1,094
Philippine Dept.	665	11,188	..	..	665	43	11,188
China	57	909	..	..	57	2	909
Graves Reg. Serv. in Europe	3	..	..	..	3	..	..
Military attachés, etc.	121	..	..	..	121	..	..
At large (incl. at sea)	118	1,473	..	..	118	..	1,473
Grand Total	7,851	101,252	4,154	23,865	12,005	1,021	125,117

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* H.D. of Long Island Sound, 29 officers and 474 enlisted men attached for administrative purposes included in totals.

† Does not include Porto Rico.

‡ Does not include Alaska.

§ West Point Cadets not included in totals.

DISTRIBUTION OF ENLISTED PERSONNEL OF THE REGULAR ARMY OF THE UNITED STATES BY CORPS AREAS AND DEPARTMENTS AND BY BRANCH OF SERVICE, SEPTEMBER 30, 1925

	A. S.	Cav.	C. W. S.	C. A. C.	Dem. L.	C. of E.	F. A.	F. D.	Inf.	M. D.	O. D.	Q. M. C.	Sig. C.	Total Americans (Less R. L.)	R. L. on Active Duty	P. S.	Grand Total Corps Area
1st Corps Area	..	225	3	914	276	10	445	10	1,735	185	154	263	13	4,233	..	..	4,233
2nd Corps Area (less P. R.)	643	116	4	1,094	1,451	710	625	46	4,380	573	348	761	751	11,502	3	..	11,505
3rd Corps Area	1,173	5	272	2,030	299	8	924	30	2,303	721	469	912	58	9,204	2	..	9,206
4th Corps Area	139	554	57	256	315	174	2,393	42	5,505	365	252	493	53	10,598	6	..	10,604
5th Corps Area	103	33	3	5	341	14	482	23	2,120	164	70	170	54	3,582	2	..	3,584
6th Corps Area	1,865	283	3	44	332	11	370	22	1,818	199	130	315	56	5,448	3	..	5,451
7th Corps Area	134	1,878	3	18	1,236	95	361	16	1,878	373	28	503	60	6,583	1	..	6,584
8th Corps Area	2,302	3,779	6	40	357	900	4,409	41	5,301	1,554	252	1,782	291	21,014	5	..	21,019
9th Corps Area (less Alaska)	214	1,398	4	1,455	569	622	1,586	46	3,725	820	164	853	263	11,719	8	..	11,727
Dist. of Wash.	351	423	..	12	444	770	471	20	476	757	9	285	65	4,083	..	..	4,083
Alaska	..	..	..	..	..	..	..	5	193	13	1	26	69	307	..	..	307
Porto Rico	..	..	..	..	10	..	..	4	1,003	24	3	50	..	1,094	..	..	1,094
Hawaiian Dept.	930	..	69	3,032	14	683	2,881	29	4,822	444	248	653	304	14,109	..	..	14,109
Panama Canal Dept.	678	..	6	1,666	2	630	415	20	3,433	267	126	593	205	8,041	..	..	8,041
Philippine Dept.—Amer.	621	..	6	1,274	6	21	10	26	1,743	327	99	270	76	4,479	..	..	4,479
" " (P. S.)	..	694	..	1,442	..	325	882	8	2,332	380	49	456	141	..	..	6,709	..
U. S. A. Forces in China	..	..	..	..	6	..	..	4	852	24	2	21	..	909	..	..	909
At sea:																	
P. C. to S. F.	..	..	..	..	..	..	..	..	..	..	..	2	1	3	..	..	3
N. Y. to S. F.	127	..	1	239	..	39	135	..	331	18	3	28	1	922	..	..	922
S. F. to N. Y.	1	1	..	26	..	6	4	4	28	..	1	3	1	75	..	..	75
S. F. to P. C.	4	..	..	1	..	9	1	..	10	..	..	..	3	28	..	..	28
N. Y. to P. C.	1	..	..	110	..	105	79	..	123	5	3	18	1	445	..	..	445
Total Americans	9,286	8,695	437	12,216	5,658	4,807	15,591	388	41,779	6,833	2,362	8,001	2,325	118,378	30	..	118,408
Total Philippine Scouts	..	694	..	1,442	..	325	882	8	2,332	380	49	456	141	..	..	6,709	..
Aggregate	9,286	9,389	437	13,658	5,658	5,132	16,473	396	44,111	7,213	2,411	8,457	2,466	..	30	..	125,117

OFFICERS DETAILED TO CIVIL INSTITUTIONS

Seventy-one officers attended 1924-1925 courses at civil institutions in the United States. They were distributed among the various branches as follows:

Infantry	7	I. G. Dept.	1
Field Artillery	7	Ordnance	7
Coast Artillery	4	Med. Corps	8
Air Service	10	Q. M. C.	8
Engineers	8	Chem. W. Service	4
Signal Corps	5	Finance	1
A. G. Dept.	1		

OFFICERS ATTENDING FOREIGN SCHOOLS

There are now eleven officers attending foreign schools. They are distributed among the various branches as follows:

Infantry	3	Q. M. C.	2
Field Artillery	1	Air Service	1
Coast Artillery	1	Engineers	1
Cavalry	2		

The figures show a grand total of students in attendance at General and Special Service Schools (including Schools for Bakers and Cooks) for the school year 1924-1925, as follows:

	Officers	Enlisted	Cadets
Regular Army (including Warrant officers)	1,354	1,837	..
National Guard	279	44	..
Organized Reserve	207	1	..
U. S. Navy	61	5	..
Marine Corps	28	1	..
Foreign Armies	27	....	..
Grand Total	1,956	1,888	976
			Flying Cadets
			138

ORGANIZATION OF THE UNITED STATES NAVY

By W. L. Rodgers

Rear-Admiral, U. S. N.

MEN AND MATERIAL

Force.—On June 30, 1925, the Navy of the United States had 8,389 commissioned and warrant officers and 84,289 enlisted men on active duty. In addition the Marine Corps (a part of the Naval establishment) had 1,170 officers and 18,310 enlisted men. Besides, there were enrolled reserves in an inactive status, but available for war and subject to short drill periods, amounting to 3,818 officers and 24,457 men for the Navy, and 151 officers and 483 men for the Marines.

Shipping.—On approximately the same date (May 1) the Navy had 2,295,882 tons of serviceable shipping of all classes and about 100,000 tons more under construction. The investment cost of this tonnage was about $1,400,000,000 and the replacement cost of the older part would be 80 per cent. greater. In addition the naval establishment owned or controlled 875 shore properties of a value of about $600,000,000 used for naval stations, dry docks, fuel stations, target ranges, radio stations, hospitals, store houses, factories, offices, etc., all as shore bases for the operation of the fleet. Further, the Navy had on hand about $800,000,000 worth of stores and munitions for the equipment and supply of the fleet. Of the aggregate tonnage of the fleet about 500,000 tons is in eighteen battle ships, and over 900,000 tons in auxiliary ships, most of which are armed and capable of fighting both in law and in fact, although not primarily intended for that purpose.

Appropriations.—For the maintenance and operation of the Navy, Congress appropriated $299,708,327 for the fiscal year ending 1925, and $319,783,978 for the fiscal year ending 1926.

Of these sums about 45 per cent. goes for personnel (pay, subsistence and allowances) and about as much for maintenance and operation of ships and other material. The remainder, about 11 per cent., was devoted to new ship construction.

The shipping of the Navy having been much augmented during the war, the ship replacement charges are at present very low. Normally they cannot be expected to run under 80 to 100 million dollars a year.

LIMITATIONS OF ARMAMENT

Question of Limitation.—As the result of the war, after its close, the Navy was pursuing a policy of expansion such as it had pleased Congress to establish, and this was making the U. S. Navy the most powerful in existence, and other nations were very jealous thereat. In the summer of 1921, in the hope of the promotion of international good will, the President called a conference of the great naval powers and some others for the settlement of disputes as to policies of the Pacific and subsequent thereto the limitation of armaments. The powers invited hastened to accept, for they saw an opportunity of limiting the naval predominance of this country.

The American proposal was for the limitation of all classes of ships, but this did not at all please the other powers and the outcome early in 1922 was a treaty requiring the United States to surrender and scrap her superiority in battle ships and limiting that class of ships and large airplane carriers, while leaving all powers free to expand their navies in all other classes of ships as they please. The treaty limits the size of individual battle ships to 35,000 tons and their aggregate tonnage to 525,000 tons for the United States, with guns no larger than 16-inch. Aircraft carriers for the United States are not to aggregate more than 135,000 tons and the ratio for the five powers signing this treaty are 5-5-3-1.67-1.67 for the United States, England, Japan, France and Italy, respectively.

The cruisers of any signing nation may be of any aggregate tonnage, but individually may not be larger than 10,000 tons, or carry guns larger than 8 inches.

By this treaty the Navy of the United States is bound at least until 1936, unless one of the parties goes to war when it becomes possible, not obligatory, temporarily to suspend the stipulations of the treaty.

Limitations Effective.—In February, 1925, the treaty for limitation of naval armaments became completely effective when the powers concerned exchanged notifications that all ships condemned by the treaty had been scrapped. It is to be noted that the treaty has stopped competition only in the very largest ships for building which the wealth of the United States gave her an advantage.

In all else, in strength of personnel, numbers of cruisers and size and numbers of all other classes of ships and in naval aviation service competition is still unlimited; and in fact in size and training and efficiency of personnel, in alterations and improvements of existing ships (within certain wide treaty limits as to battleships) every navy is striving to outdo others as well as the size of its budget permits.

Policy of Navy Department.—Upon the signature of the treaty, the Navy Department formulated a policy in conformity with the treaty for its subsequent guidance, which has been approved by the President and is in force so far as the Bureau of the Budget and Congressional appropriations permit.

This statement of policy lays down as fundamental that, "The Navy of the United States should be maintained in sufficient strength to support its policies and its commerce, and to guard its continental and overseas possessions." The statement of proper strength follows: "To create, maintain and operate a navy second to none and in conformity with the ratios for capital ships established by the treaty." And further: "To make the capital ship ratios the basis of building effort" and "To maintain an active personnel afloat in conformity with the ratio for capital ships." And, "To direct the principal part of the air effort on that part of the air service which is to operate from ships of the fleet." Lastly, "To give the public all information not incompatible with military secrecy."

It will be seen that this policy abandons all competition to exceed other powers in strength, but retains the right to develop the highest efficiency in existing forces.

The financial limitations placed by the Budget office have prevented the full execution of this policy. As Departmental tables show, the maintenance of treaty ratios calls for several thousand more men; over 200,000 tons in additional cruisers, and 40,000 tons in submarines.

On the other hand the war left the United States with 350,000 tons of destroyers, an excess over the treaty ratio, so that none are proposed just now.

FINANCE

Budget.—In the development of the Navy, the Bureau of the Budget is a new influence deserving of note.

The Budget office has done much to cut national expenditures and the efforts of the Navy Department to meet its demands have led to great increase of economy with as yet little, if any, loss of efficiency.

Nevertheless, the ultimate objectives of the two departments are not identical nor are they completely reconcilable.

The principal objective of the Budget each year is to cut expenses for the current year and somewhat neglect contingencies visible only in the future. Departmental efficiency is not the primary aim of the Budget. On the other hand, departmental efficiency is the primary duty of the Navy. It must maintain present efficiency and also look into the future, preparing each year for emergencies that may not arrive till next year or later. So far the Budget has held the whip hand; but if the Navy is to remain a main reliance of the people as it has been in the past, it will soon be necessary for the Budget to be more liberal.

Material and Research.—The history of naval management during the calendar year 1925 may be divided into two sections and first that of material. The great spending Bureaus have maintained the fleet in efficiency and in addition have engaged in scientific research, to promote warlike efficiency and financial economy.

Among the principal efforts in this direction are modernization of several battleships, improvements in auxiliary machinery, improved types of engines in submarines, including electric drive, improvements in radio communication and in underwater sound communications for direction and distance and in the self-maintenance of ships afloat without aid from repair shops. The research laboratories have improved materials and increased economy in oil fuels. In ordnance there has been development particularly in anti-aircraft guns and accessories for sighting them and increasing their effectiveness.

The air research work of the Navy is also important and the flying machines turned out at the naval factory are better every year. So long as this rapid improvement continues, it is inexpedient to attempt to establish large reserves of war stocks lest they become obsolete before service.

The appropriation for air service for 1925 was $15,150,000 which does not include personnel whose expenses are charged against general naval account.

TRAINING

Scientific Institutions.—Among the auxiliary scientific work of the Navy is the maintenance of the Naval Observatory and of the Hydrographic Office. Both do work fundamentally necessary for seamen. There is a permanent desire on the part of other departments of government to deprive the Navy of these offices under the plea of scientific and economic centralization. But as their work is for seamen and is directly subject to the professional criticism of their brother mariners among the officers of the Navy at sea, it is probable that removal to another department would tend to render them somewhat slow to meet the general demands of commerce and navigation.

Efficiency.—In operation it is the object of the Navy to prepare itself for war by being efficient at all times. For this purpose the Department is maintaining a high standard of recruiting and offers its men opportunities for scholastic and trade training while pursuing their military duties.

For officers, as well as men, there are technical and military courses to fit them for administrative duties in peace and war and for sound military leadership in war.

Fleet Training.—In fleet training the fleet has carried out its usual fleet exercises and target practice and battle manœuvres. The efficiency of the fleet is rising. In pursuance of this purpose it has held general exercises in the Caribbean and in the Pacific upon war-themes and later made a voyage to New Zealand and Australia upon the invitation of those dominions, where it was warmly welcomed and did much to improve cordial relations.

Certain elements of pacifistic opinion in this country opposed the movements in the Pacific as likely to give offense to Japan. But Japan raised no protest nor could she properly have done so in view of the fact that only a few weeks previously she had held fleet manœuvres whose theme was the advance of a hostile fleet westward across the Pacific. Indeed, such manœuvres are normal and so regarded by all powers. The right of the United States to send its fleet to any part of its own territorial waters and wherever else it is welcome must remain unquestioned.

FUNCTION

Protection of American Interests—There have been disturbances and unrest in various parts of the world, chiefly in China and in Syria, where U. S. Naval forces have been sent for the protection of missionaries and other United States interests and their presence has had a stabilizing effect.

It may be said in this connection that although the churches are apt in general to oppose the employment of military and naval force, yet the constant demands of missionaries for naval protection in China at every disorder have been the chief inducement, although not the only one, for the Navy to ask and obtain from Congress a flotilla of river gun boats for employment in those waters.

Navy in Haiti.—In the early part of the fiscal year 1925 the marine forces which have long secured order and good government in San Domingo and Nicaragua were withdrawn, but in Haiti a marine brigade is still retained; where, in the words of the Commandant, "It is the remains of the original force of occupation which brought to Haiti peace and tranquillity."

The immediate task of maintaining peace and order has been performed by the "Gendarmerie d'Haiti," which is composed of Haitian troops commanded by officers most of whom are officers and men of the marine corps.

Casualties.—The operations of the Navy have been carried on at the expense of some casualties, chiefly in submarine and air service. A certain number of such casualties is inseparable from efficient service, for risks must be run; but when very frequent it is possible to allege that they are the result of maladministration and inefficiency. Indeed, such charges have been current this year, chiefly in regard to the air service and its management. In September the submarine S-51 was lost with almost all on board as the result of a surface collision with a steamer. The accident was in no way due to submarine service. [It is understood that the Navy Department will probably take action for criminal negligence against the captain of the steamer.] The loss of the dirigible U. S. S. Shenandoah, in September, with regretable loss of life and unfavorable press comment, led the President to appoint a special Board of distinguished citizens to inquire into the conduct of the air service both of Army and Navy, and of civil departments and their relations to the national defense. The special Board finds the present organization and administration of naval aviation substantially sound and recommends minor changes only. However, in regard to the Shenandoah, the public belief is much in error as to the airworthiness of even the best of this type of craft. In the design of all aircraft, lightness is essential and is opposed to strength and reliability. In the case of the Shenandoah her design was necessarily fragile, because if she had been amply strong she would have been too heavy to rise in the air. The risk of crashing was the condition of service. The Court learned that she was designed to meet vertical currents of air of about ten feet a second, and to do this she had a factor of safety not above two; whereas, the ordinary engineering factor of safety is four to five. Experience had led the designers to think this assumption as to vertical currents sufficient, but they now believe that at the time of her loss the Shenandoah met far greater vertical currents, causing strains much beyond her strength. There is no reason for believing the Shenandoah was in any way mishandled. She was only unfortunate in meeting a gale of wind beyond her strength.

The Court of Inquiry recommends continuing the development of this type of air-craft and denies sensational stories of neglect and mismanagement.

AIR

Independent Air Service.—As for the general result of the investigation of the relations of the War and Navy Departments to their air services, the Special Board's belief and other weighty opinions already given the public are to the effect that an independent air service as a third arm of defense is undesirable. The public is misled by the romance of the new vehicle, for the flying machine is not a weapon but a vehicle merely. It is subordinate to the land service and the sea service because it can find its objectives only where they find theirs and cannot act without their support and need the shelters they provide, for fliers must alight at intervals of a very few hours.

Some members of the air service make vehement demand for freedom from control by non-fliers, alleging the latter are incapable of understanding the needs of fliers and the propriety of their demands. In individual cases of mismanagement cited privately to this writer as illustrative, it was clear that the errors named were due to the general unfitness of these particular superior officers to exercise authority. Each would probably have mishandled his own particular arm in the Army or Navy in the same way.

Air as Auxiliary.—In general, commanding officers cannot fail to be most anxious to make the best they can of the air forces under their command, and will listen to the air representative just as a cavalry officer listens to the advice of his veterinary, for the air service is a very important auxiliary. But the right and the duty of the commanding officer to make the ultimate decision and perhaps to call for sacrifice of life has been and must remain untouched as regards the air service as well as all other special branches and service corps of Army and Navy. The demand of the younger fliers for freedom from control of non-fliers is in great measure the usual demand of youth in all times and in all walks of life for freedom from restraint and from sound discipline, and the public should not take it as wholly in the interest of national welfare and efficiency, any more than it should accept the extreme technical claims of the air service that it will predominate in the wars of the future.

In the last war from first to last the Allied armies alone had large numbers of airplanes in service with their ground attendants of about ten men per plane. This enormous force of men and machines was helpful, but it did not decide the war. At the present moment there is no reason to believe that there is any probability of the air service supplanting or even rivaling the surface fleets of any navy in the world, although it is a very necessary auxiliary.

It should be recognized by the public that in all countries of the worl it may be surmised that the agitatio for larger aviation services is in considerable part maintained by th aviation manufacturing industry a an advertisement for the advancemen of the industry and as publicity material even more than for the defens of the nation.

NAVAL SHIP CONSTRUCTION

By Peter Bain

Editor, "Shipping Illustrated"

Navy Board's 1925 Program.—On January 17, a special Board consisting of seven Admirals and the Commandant of the Marine Corps, appointed by Secretary of the Navy Wilbur, made its report on the Department's immediate requirements, recommending among others the following seven items:—

That the six coalburning battleships, *New York, Texas, Wyoming, Arkansas, Utah* and *Florida*, be modernized, as authorized by Congress, without delay.

That the seven battleships, *New Mexico, Mississippi, Idaho, Pennsylvania, Arizona, Oklahoma* and *Nevada* be modernized as allowed by the Disarmament Treaty and as soon as possible.

That the eight 10,000-ton cruisers, already authorized by Congress, be built without delay.

That the three remaining fleet submarines, already authorized by Congress, be laid down during the fiscal year 1927.

That a progressive and adequate airplane-building program be authorized to ensure to the fleet a complete outfit of up-to-date planes, with 50 per cent. replacements in reserve, as well as the necessary training planes, at a total expenditure for the first year of $20,000,000.

That the completion of the aircraft carriers *Lexington* and *Saratoga* be expedited.

That an aircraft carrier of about 23,000 tons be authorized and laid down without unnecessary delay.

$240,000,000 Program.—The carrying out of this program in its entirety would have required an expenditure of about $80,000,000 a year for three years. Feeling that an expenditure o that magnitude was hardly warranted then as now, President Coolidge requested a further report which would show first, the relative priorities of the seven items above set out and second, the order of priority which the Special Board would recommend under several scales of annual expenditure materially less than that required for the complete program. On January 31, the Special Board presented a supplementary report in which it recommended an amended order of priority, if all seven items were to be included. After consideration of the original and supplemental reports, the President forwarded to Congress estimates for appropriations which included modernization of three of the coalburning battleships; continuation of the construction of the two airplane carriers; three million dollars for airplanes for the carriers, this being additional to one million for the like purpose included in the 1926 budget; laying down and commencing the construction of two 10,000-ton cruisers; commencing the construction of gunboats for patrol service on the Yangtse River.

Effects of the Disarmament Agreement.—In pursuance of the Limitation of Arms Agreement, 80 "capital" ships, 28 of which belonged to us, were scrapped. Of our new ships then building, the Colorado and West Virginia were completed, while the *Saratoga* and *Lexington*, originally laid down as battle cruisers, were, in accordance with the Agreement, converted into airplane carriers. The *Saratoga,* launched by the New York Shipbuilding Corporation, Camden, N. J., in April, 1925, is concrete evidence of the effect of the Agreement limiting naval armament, also evidence of fact that at the Conference the question of aircraft was under consideration, and that one of the methods adopted for limiting their effect on trans-oceanic warfare was by limiting the size and number of aircraft carriers.

Under the terms of the Agreement we were authorized to complete the *Saratoga* and *Lexington* as aircraft carriers, each to have a displacement of 33,000 tons and, in addition, to complete aircraft carriers having a total of 69,000 tons, or a total displacement of 135,000 tons of aircraft carriers of over 10,000 tons each. The *Saratoga* and the *Lexington* will each carry 72 planes, of which 31 will be bombing type, and the total cost of each vessel fully equipped will be about $45,000,000. Their designed speed is 33.9 knots, realised from 180,000 horsepower developed, and exerted through four propeller shafts. The *Saratoga* is expected to be completed in 1926. The *Lexington* was launched in October last from the plant of the Bethlehem Shipbuilding Corporation, Quincy, Mass.

The *Saratoga* and the *Lexington* have the distinction of being the longest naval vessels in the world, besides being also the highest powered craft, whether naval or mercantile. They are each 888 ft. long over all 850 ft. long between perpendiculars, 106 ft. beam and 74 ft. deep. In conversion to airplane carriers, the hulls below the waterline were left unchanged as far as possible, so as to retain substantial protection against submarine attack. Above the waterline, however, the vessels present a somewhat unusual appearance, the bows in particular being much flared out so as to secure the greatest deck width possible throughout the greatest length. A rather interesting feature is the recesses in the hull sides, between decks, for lifeboat stowage. The airplanes are stored below and are raised to the flying deck by specially designed elevators, one of which is only surpassed in size and capacity by the elevator that raises the stage at the Hippodrome, New York.

Navy Yards Seek Merchant Ship Reconditioning.—Early in 1925 a widespread controversy arose relative to Navy Yard participation as bidders for merchant ship repairing and reconditioning. Our privately owned plants, still smarting under the loss of big and new warship construction, and being hard hit at the same time by the generally overbuilt situation everywhere, were in no mood to receive further hard knocks, and certainly not this one which they considered the unkindest cut of all. They therefore lined up strongly in defence of what they considered their special rights and privileges. The controversy arose through the insertion of an amendment to the Shipping Board Appropriation Bill in Congress, which had for its objective the giving of precedence to Navy Yards in securing contracts for repairing and reconditioning merchant ships. In a word, the amendment, if passed, would have made it compulsory for the Shipping Board to award repair and reconditioning contracts to Navy Yards when their estimates of cost were lower than the bids submitted by private firms. The latter charged that the Navy Yards at New York, Boston, and Mare Island, which in the past had received Government contracts for work on Shipping Board vessels, had invariably exceeded their original estimates, thereby costing the Government larger outlays than would have been necessary had the work been done by private firms.

A few of the high lights exhibited on behalf of the private yards were that Navy Yards could not bid a firm price; that the department letting the contract has no guaranty or protection either as to the final cost or the time the job will actually take; that cost charged to the work is not the true or commercial cost, as it includes less than half the industrial overhead, the remainder not being charged but paid out of naval appropriations; that necessary work on naval vessels takes precedence over work for other departments, so that there can be no assurance of prompt or economical service.

Arguments for Federal Service.—Of course it was not at all difficult to analyze the underlying reasons that had encouraged governmental interference with private business of this kind. Fundamentally, Government employees in shipyards receive better wages and enjoy probably easier working conditions than their fellows in private shipyards. Again, the natural human instinct is to seek to continue in Government employ and to enlarge that particular field for other employees. Hence, they have been organized in such strong combinations as to bring political pressure to bear on the representatives in Congress to aid and abet Navy Yard work wherever and whenever possible. This political pressure, added to the natural propensities of certain radical elements heretofore in Congress and in high executive positions, has resulted in the expenditure of a great deal of money in the building up of Navy Yard ship-construction facilities, and in an enormous armor-plate plant, all of which are now worth little more than scrap value. In the very nature of things, the building and repairing of ships always have, and always will, cost much more in Government plants than they do under properly regulated private auspices.

Again, it is claimed that not alone should there be no more merchant ship repairs made in Navy Yards, but serious consideration should be given to having a goodly percentage of repairs to naval vessels made under competitive conditions, in our privately owned shipbuilding and ship-repair plants. The Government would save much money by so doing, and this additional work in these days of shipbuilding depression would go far towards saving some of the already sorely tried private establishments. The Navy is maintained largely to protect and support the American Merchant Marine; therefore, by helping to save some of the private shipyards from disintegration, it would at least be carrying out part of its mission.

The private shipbuilding and ship-repair yards won out, the presentation of their case being unassailable from every standpoint. That there has been an insistent and growing tendency towards Government interference and encroachment in private business generally, and that it was resented, was proven at the thoroughly representative and highly successful Conference of Protest, if we might so term it, held in Washington, D. C., in December last. Practically every trade and industry in the country were there and, naturally, private shipyard interests were to be found standing shoulder to shoulder with the others in the fight for freedom from Government participation.

NEW VESSEL COMMISSIONINGS

Ship Memphis.—During 1925, the U. S. S. *Memphis*, probably the speediest of Uncle Sam's new scout cruisers, was delivered by her builders, the Wm. Cramp & Sons Ship & Engine Building Co., to the Navy Department, being the fifth and last constructed by that firm of a fleet of ten turned out in the near past by different American private shipyards. On her trial trip, the *Memphis* maintained an average speed of 34.53 knots during a four-hour full-power spin at sea. A sister vessel, the *Marblehead*, by the same builders, reached 35 knots some time after being commissioned.

Destroyers.—Two new destroyer tenders received into United States naval service—the *Dobbin* and the *Whitney*—drew much favorable comment on account of their general design and layout, and of the completeness of their equipment to meet all ordinary needs of service—supplies and repairs for a group of 18 destroyers throughout a period of 60 days under war conditions. Their construction was authorized in 1918 but was delayed in order that the lessons of the European War might be applied. The *Dobbin* was assigned for construction to the Philadelphia Navy Yard and the *Whitney* to the Boston Navy Yard. Much of the equipment, such as pumps, machine tools, etc., was furnished from stock.

from ships scrapped under the provisions of the Washington Arms Conference. The *Dobbin* and *Whitney* are each 483 ft. 9½ inches long over all; 460 ft. between perpendiculars; 60 ft. 10⅛ inches molded and 60 ft. 11⅝ inches extreme beam, with an extreme draft of 22 ft. 3½ inches, and a displacement of 10,600 tons. The personnel for each comprises a force commander and 7 staff officers, a commanding officer and 29 officers, and 416 enlisted men. Twenty-four boats are carried with a capacity of 1024 persons. The battery consists of eight 5-inch, 51 caliber rifles, and four 3-inch anti-aircraft guns. The main propelling machinery consists of a high and low pressure Parsons-type turbine operating through single reduction gearing, with the astern units of the impulse wheel type. Steam is provided by two Bureau of Engineering express-type boilers burning fuel oil and designed for a working pressure of 215 pounds per sq. inch. The oil burners are of Babcock & Wilcox-Lodi type.

Submarines.—Fleet submarines authorized for construction by the last Congress were laid down at the Portsmouth, N. H., and the Mare Island, Cal., Navy Yards. Two 10,000-ton light cruisers authorized were also ordered laid down, one to be built at the New York Navy Yard, and the other by a private shipyard. Engines for the submarines and for six new river gunboats were ordered built by the New York Navy Yard, the gunboat hulls to be built at the Asiatic Station. The following schedule of Navy Yard work in the authorized modernization of battleships, which does not involve gun elevation, also was announced: *Florida* and *Utah* to Boston; *Arkansas* and *Wyoming* to Philadelphia; *Texas* and *New York* to Norfolk Navy Yard. Regarding the *Texas*, it is claimed that, when her modernization is completed, she will be equally formidable with any fighting ship now in the United States Navy. The complete job will cost about $2,500,000, small comparatively for a vessel that will again be as good as new and up-to-date as well, in view of the fact that to replace her at the present time with an entirely new ship, would cost probably $35,000,000 or more. She is expected to be at the Norfolk Navy Yard for nigh two years.

NAVAL VESSEL DISASTERS

The past year proved no exception in the matter of naval vessel disasters and tragedy, practically all of the leading naval and merchant marine nations throughout the world suffering to a lesser or greater extent. The major disasters with their accompanying tragedies were almost entirely confined to submarines and, strange to say, collision when submerged and on the surface, with merchant ships, was the contributory cause. Probably the gravest of submarine tragedies in the annals of the American Navy was the sinking of the submarine *S-51* off Block Island on September 25 last, following a collision with the passenger and cargo steamship *City of Rome* of the Ocean Steamship Co. of Savannah, Ga.

Saving Veteran War Ships for Posterity.—Half a million dollars is to be raised by American school children, in 10 cent subscriptions, for the rebuilding of the frigate *Constitution*, now lying at the Boston Navy Yard, near where she was launched in 1797. Her wood hull, several times reconstructed during her long years of active service, has now fallen into such weakness and decay that another rebuilding has become imperative. The cost—one-sixth of that of a superdreadnought—could readily have been provided in an Annual Appropriation Bill, but the Navy Department has very wisely left the raising of the necessary money to the patriotic zeal of youthful and grown-up Americans. In the United States Navy, the *Constitution* and her somewhat smaller sister, the *Constellation* at the Newport training station, are the oldest ships that still survive.

CLOSING OF NAVY YARDS

Revised estimates of last year provided for the closing of the Boston Navy Yard, the Charleston, S. C., Navy Yard, the Supply Base at

Brooklyn, N. Y., and either the Great Lakes or the Hampton Roads Naval Training Station. In this connection, it was pointed out that recommendations of the Board, headed by Rear-Admiral Rodman, were being followed. The existing total of 86,000 enlisted men was expected to be maintained. Closing of naval yards has taken place in Great Britain as well as here, and there, possibly, more opposition has appeared to such action.

NAVAL AËRONAUTICS

By William A. Moffett

Chief of the Bureau of Aëronautics, U. S. N.

During the World War, Naval Aviation was assigned the task of supplying patrol-type aircraft for convoy, scouting, and anti-submarine defense measures. It was also assigned the task of training the necessary personnel and equipping and manning the squadrons. At the close of the war, a large number of twin-engine flying boats were on hand and skilled personnel were operating them.

The Task.—Obviously, coastal patrol is but one of the important missions of Naval Aviation. In general, Naval Aviation may be divided into two branches which, for convenience, may be called "Air Service" and "Air Force." Under "Air Service" we have those branches of aviation which are auxiliary to the fleet. Under "Air Force" we have that branch which is an important striking force for offensive work. With the close of the war, Naval Aviation undertook the task of bringing about the development necessary to carry out its missions as a component part of the fleet.

It was decided that six types of aircraft were required:—(*a*) Observation types, to be flown from the decks of combatant ships used for short range scouting and the control of gunfire; (*b*) Fighters, to be flown from combatant ships as well as from carriers, as a means of protection for other types of aircraft; (*c*) Torpedo and Bombing planes, to constitute the basis of the striking force; (*d*) Scouting planes, for long range overseas scouting; (*e*) Patrol types, for coastal patrol, including convoy, anti-submarine defense, and fleet base force reconnaissance; and (*f*) Training airplanes.

Limitations.—Two important limitations have been encountered: first, that of size, and, second, the necessity for economy. Obviously, a modern man-of-war has concentrated in it the maximum in gun power and speed on the limit of displacement. The addition of aircraft to existing ships brings about a limit in the size and weights which can be utilized. The necessity for economy has forced on us the combination of types. Thus, Scouting, Torpedo, Bombing, and Patrol work is now being done in a single-engine twin-float airplane convertible from land to seaplane and therefore available for use on the carriers or from the surface of the sea. In Training planes, we have had to combine primary training, advance training, and gunnery training in the same type. The large twin-engine flying-boat development has gone ahead steadily and has advanced to the PN-9 and PB-1 types designed for the San Francisco-Honolulu Flight, but these have not been purchased in quantity because of the necessity for economy. An aircraft designed for two or more purposes is unlikely to accomplish any of the purposes to the very best advantage, and we have had to accept some limitations in our development.

Engines.—In carrying out our mission in the World War, we confined our efforts to the development of two engines—the Liberty and the Hispano-Suiza; the one for patrol work, the other for training. We were therefore immediately confronted with the problem of developing new engines to suit our particular needs. The Hispano and Liberty were improved and refined pending this development. The Wright Model "T" engine was developed for Torpedo-plane work. The Wright Model "J" (aircooled) was developed for Fighting and Observation work. The Packard 1A-1500 was brought through as a great improvement over the Liberty in the same general power, while the Packard 1A-2500 engine was developed as an improvement over the Model "T" for Bombing, Scouting, and Torpedo planes. The Wright Model "P" was brought through, an aircooled engine in the Liberty field. During the World War, aircraft and aircraft-engine development has been extremely rapid, thanks to the close coöperation between the Navy and the aircraft manufacturers. During the development period, over fifteen million dollars have been spent in the aircraft-engine industry and hundreds of greatly improved engines are now in active service. At the same time, the aircraft-engine industry has been sustained and assisted.

Sea Service.—As a first step in getting Naval Aviation to sea with the fleet, the existing coastal patrol types were organized in squadrons based on tenders which have cruised all over the world with the fleet and have won the highest praise from the fleet command. Through these squadrons the development of the Torpedo plane was actively carried on until now we have, in our three-purpose SC's, a most excellent Torpedo plane. In the meantime, squadrons based on shore were organized for the development of small shipboard aircraft and this development has gone ahead so rapidly that the squadrons are now at sea with the fleet. Catapults were developed for launching seaplanes from the decks of ships, and a most successful Observation airplane, the "UO," has been flown from the decks of naval vessels all over the world. In this matter of shipboard aircraft and catapults, we are definitely in advance of foreign practice.

The small shipboard Fighters for the protection of the Observation types have likewise been brought through and flown from the decks of combatant ships. While these types are not all that we desire, nevertheless, the time for development has been extremely short and the progress made must be considered satisfactory. During the joint exercises off Hawaii, over one hundred fleet aircraft exercised with the fleet and gave a most excellent account of themselves.

In the exercises with the fleet, developments in tactics and material have gone hand in hand. Developments in each have depended upon developments in the other and, as a measure of our success, it may be stated that aircraft spotting has become an absolute essential to the control of gunfire in the fleet.

Carriers.—The close of the war found us with no carriers, but this development was immediately taken in hand. The collier *Jupiter* was converted into the experimental carrier *Langley* and in this floating laboratory we have developed the types of aircraft and the material and technic of carrier work to the point where the results are now being incorporated in the two large carriers, the *Lexington* and *Saratoga*, which, with their aircraft and crews, should be ready late in 1926. These two carriers are among the largest ships in the world and will form the foundation of the Navy's aircraft striking force.

Dirigibles.—In the matter of lighter-than-air craft, the Navy has felt that the chief usefulness of the large rigid type lies in scouting with the fleet. The *Shenandoah* was built in this country and operated successfully for two years. Even her unfortunate loss leaves her with a record of achievement which is not surpassed. The *Los Angeles* was acquired in Germany and has been operated with a view to combining the development of this important arm with the assistance of commercial aviation. Airships over the sea are not subjected to the same trials as airships over the land, and they are of great importance in long-range scouting.

Training.—Aëronautical developments by the government have assisted materially in the advance of commercial aviation. The engineering information obtained has been widely disseminated. The experience of design and development by the industry is now available for commercial aviation. In spite of the post-war difficulties, that portion of the aircraft industry which has shown itself skilled in design and manufacture has been maintained. The Navy has brought about the development of new types to meet its special requirements and is now operating these new types at sea with the fleet. In spite of the loss of a large portion of skilled war-time personnel, Naval Aviation is now in possession of skillful mechanics and pilots. The struggle of Naval Aviation to demonstrate its ability to take its place as an important arm of the fleet has been a difficult one. The difficulties of this struggle have forced us to unusual endeavors, but we are proud to say that Naval Aviation is now an integral and component part of the fleet and that no one realizes more keenly than the Navy itself the very great importance of this new arm.

Relation to the Navy.—Our national policy calls for a small standing army and a much larger Navy. The Navy must always be in a state of readiness for immediate action, and Naval Aviation must be in the same state of readiness. We feel, in Naval Aviation, that the Navy is the front line of the nation's defense and that Naval Aviation is the advance guard of this front line. We feel very keenly our responsibility because it is apparent, with the fleet at sea with its own aircraft, this nation need have no fear of attack from any possible enemy. A powerful, balanced fleet, strong on the surface, under the surface, and in the air, is the nation's best possible guarantee of continued peace and prosperity.

RECRUITING, U. S. NAVY

By L. B. Porterfield

Captain, U. S. N. Bureau of Navigation

Districts and Stations.—During the year 1925 recruiting was carried on throughout the continental limits of the United States by the naval recruiting force distributed in proportion to the density of population so that canvassing for recruits could be carried on uniformly and simultaneously throughout the country. This was accomplished by dividing the United States into thirty-seven districts, following in general the boundaries of the most populated states. In some exceptional instances two states, or parts thereof, were incorporated into one district where states were small, or where territory was covered by forest or desert, thereby rendering such states small for recruiting purposes. In exceptional cases mentioned, some districts were favorable to certain elements of recruiting while others were unfavorable; and as a consequence, compromises in distribution of territory are continually being effected in order that the thirty-seven districts may harmoniously adjust all elements pertaining to the work of this section. These districts are under the jurisdiction of the Bureau of Navigation, Navy Department, Washington. Each district is administered by a main recruiting station (a central office) located in one of the principal cities lying within the district. The personnel of this station is composed of one commissioned officer of the Line, one commissioned officer of the Medical Corps, U. S. Navy, and an average of about twelve enlisted men. In order to cover the district thoroughly, offices known as sub-recruiting stations are opened in the smaller cities within the district, and have for their personnel one or possibly two enlisted men. These sub-stations are responsible in turn to their main recruiting station. Outlying territories which cannot be covered from the main or a sub-station are covered by traveling recruiting parties which go through the district and send recruits back, if they are considered acceptable, to the main station. Applicants for enlistment may apply at either main or sub-stations. Such applicants as apply at sub-stations, after a superficial examination, are sent at government expense to the main station for a thorough examination and enlistment.

Qualifications and Personnel.—After recruits have been thoroughly examined at a main station, they are, if accepted, sent to the nearest training station for training before going to the fleet. Qualifications for enlistment are:—Must be a citizen of the United States; must be not less than seventeen years and not more than thirty-five years of age, and must be physically, mentally and morally qualified. Should applicants be rejected at the main station they are returned to their place of application for enlistment at government expense. In accepting recruits in this manner, great care is necessitated by the recruiting personnel. As a consequence, picked men are selected for this detail. Four hundred and fifty men are now employed on this duty; this number varies, however, in accordance with the demand for recruits. At the start of the year there were two Recruiting Schools, one at Hampton Roads, and one at San Diego, from which all men sent to recruiting duty had to graduate before they were allowed to recruit in the field. These schools greatly helped in the preparation of men for individual recruiting and it is greatly regretted that due to lack of officer personnel these schools have been temporarily discontinued. The recruiting personnel not only obtains men for the Navy, but has for additional duties instruction of Naval Reserve Units, service on Courts and Boards and representation of the Navy in various capacities at civil functions as well as military.

Quality.—The outstanding feature of the recruiting force during 1925 was the high standard maintained and as a consequence the high quality of recruits received. Great care was particularly enjoined on all the recruiting force to accept only applicants whose mental, moral and physical qualifications were excellent. But 10,200 men were required. As a consequence this condition gave a much more favorable opportunity for quality recruiting than in years when great numbers were entailed. At present about half of the accepted recruits have finished one or more years of high school.

Period and Tests.—At the beginning of the year enlistments were made for a period of four years, except in the case of minors seventeen and under eighteen years of age, who were required to enlist for minority only, that is, until they reached their twenty-first birthday. On the approval, March 4, 1925, of Public Bill No. 611, H. R. 2688, the Secretary was allowed discretionary authority to accept men for the Navy for terms of two, three, four and six years, together with minority enlistments. This gave rise to six-year enlistments under the Secretary's authority. The two and three year enlistments were not considered desirable at this time. As a consequence, only four, six and minority enlistments were made. A further provision in this bill allowed for the discharge of all minors who had enlisted without the written consent of their parents, providing the parents made written application for this discharge within sixty days after enlistment. In view of the above, not only must applicants pass a rigid physical test, be qualified both mentally and morally, but must have, if minors, the written consent of their parents. Moral qualifications are determined in all cases by references from reputable citizens. References are investigated before enlistments are consummated. These provisions entailed considerable extra work on the recruiting force, as not only was time taken to check references, but age certificates and consent papers had to be obtained under oath.

Cessations.—On January 31, due to the Navy having sufficient men, all canvassing was stopped and only such men taken as applied at main or sub-stations. This continued until March 16, when all recruiting was discontinued. From this date until April 24, no recruits whatsoever were taken. On this date, the Navy having decreased to approximately 84,000, general recruiting was again resumed. On July 1, 1925, due to appropriations not being sufficient to pay 86,000 men (the allowed strength), recruiting was again stopped and no recruiting was done until September 18, 1925. At this time the enlisted strength was about 82,000 and in order that no increase might be made recruiting stations were assigned a definite number of recruits to be accepted per week as a maximum.

Publicity.—As publicity is a necessary adjunct to recruiting, the Recruiting Bureau at South and Whitehall Streets, New York, is maintained by the Bureau of Navigation to furnish the recruiting service with posters, placards and other publicity mediums. The personnel consists of two commissioned officers and about twenty-five enlisted men. This office has a corps of photographers working under it, who obtain both moving and still pictures of current naval events for issue to newspapers or moving-picture theatres, as the case may be. At present there are for general distribution by each of the various recruiting officers approximately 10,000 feet of travelog films, which can be procured by individuals for showing from the nearest recruiting station.

NAVAL EDUCATION

By Carroll Storrs Alden
Professor of English, U. S. Naval Academy

General Progress.—The Navy has had constantly impressed upon it in 1925 the necessity for rigid economy but has suffered no lessening of responsibilities. The question has been how could the required strength be maintained with the reduced number of units in the fleet and at the shore stations? How could the ships in commission be kept at maximum efficiency with a decreased personnel and a budget far below that recommended? The most satisfying answer has been, educate officers and enlisted men by intensive training and by competition; make each, no matter what is his rank or rating, during the period of his duty a specialist. Never before has this training thus permeated the entire mass from rear admiral to apprentice seaman or fireman or painter, at special school, on board ship, or at shore station. More than all else, there has been marked progress in aviation. To this branch the Naval Academy has for the first time in 1925 given a conspicuous place in its curriculum.

The Naval Academy.—The law of 1917 allowed for each senator, congressman, and delegate five midshipmen, but this was amended in fact if not in form by the appropriation bill of May, 1924, which provided for the pay of only three midshipmen for each. Thus in October, 1925, there were enrolled 1,755 midshipmen, or 744 less than in October, 1923. For the class entering in 1926 the law authorizes in addition to midshipmen appointed by other means twenty-five selected from the Naval Reserve and the Marine Corps Reserve as the result of competitive examination. The mission of the Academy has been recently stated, "To mould the material received into educated gentlemen, thoroughly indoctrinated with honor, uprightness, and truth—with a ground-work of educational fundamentals upon which experience afloat may build the finished naval officer. . . ." The four years' course seeks the development of the individual, the training of the individual as a part of the Service, and the instructing of the individual in the technical subjects of his profession. The midshipman on entrance spends the summer in intensive training furnished by drills in infantry, seamanship, engineering shops, and ordnance (including rifle range), with additional practice in swimming and gymnasium. At the same time by lectures he is indoctrinated in the traditions of the Navy. The work of the academic year, October to June, is divided among eleven departments: Executive, Seamanship and Flight Tactics, Ordnance and Gunnery, Navigation, Engineering and Aëronautics, Mathematics, Electrical Engineering and Physics, English, Modern Languages, Physical Training, and Hygiene. Instruction is carried on by the recitation method, the small sections into which a class is divided, from twelve to seventeen in each, making this possible. In the summer the three upper classes embark on a squadron of battleships designated for the purpose. On them they have practical instruction in the operation of a modern ship, particularly in steam and electrical engineering, ordnance, navigation, seamanship, communications, and ship handling. The cruise in 1925 was made to the West Coast, the squadron going through the Panama Canal and visiting Panama, San Pedro, San Francisco, Astoria, Seattle, San Diego, and Panama. The summer of 1925 brought a change in the curriculum of the First (Senior) Class.

Instruction in Aviation.—While approximately two thirds of their number were undergoing the drills and instruction of the practice cruise, the other third, 150 midshipmen, remained at the Naval Academy for a course in aviation. This was "intensive instruction in ground and flight work," so that with a short course after graduation they might "become qualified either as naval observers or naval aviators." The instruction was in general the same as that given in the "Ground School Course" and "Ground Gunnery" at Pensacola [See "Aviation at the Naval Academy," by Captain H. A. Baldridge, U. S. N., *Naval Institute Proceedings*, Sept., 1925]. The textbooks were the three Pensacola manuals covering aërial navigation, aviation engines, aërology, aviation history, aërial gunnery, bombing, scouting, aircraft communications, theory of flight, and structure and rigging. For the practical side of the instruction a scouting division of six seaplanes with the required officers, qualified naval aviators, and enlisted men were ordered to the Academy. They gave the midshipmen instruction in the air—eight hours for each midshipman—including rules of the road, water handling, sending and receiving radio messages, target practice, navigation, plotting positions—in fact, everything except solo flying. Hereafter this course will be given to each class in the three months immediately following graduation before they are scattered to the various ships of the fleet. The course at the Naval Academy made no attempt to teach more than the fundamentals: "The Academy no more expects the graduate to be a finished flyer upon the completion of the special course here than it expects him to be 100 per cent. proficient as an engineer officer, gunnery officer, navigator, or captain of a dreadnaught upon the completion of his regular four-year course."

Naval Post Graduate Activities.—Somewhat more than seventy graduates of the Naval Academy, the larger number with five years' experience in the fleet, returned to Annapolis in October, 1925, as the entering class for the year in the Post Graduate School course. This is for lieutenants, junior lieutenants, and ensigns selected to specialize in one of the following subjects: ordnance, radio and under-water sound, naval construction, gyro, electrical, mechanical, Diesel, and civil engineering, and aviation. The first year of the Post Graduate School course, at Annapolis, covers merely the ground work, and is the same for all. After this the student officers scatter, one group going for their second year to the Massachusetts Institute of Technology, another to Columbia, another to Rensselaer, another to Harvard, etc. The entire course lasts, according to subject, from twenty-eight months to three years.

The Naval War College.—Officers ordered to the College study the conduct of war in the abstract with special reference to naval warfare, and apply the principles concretely to definite strategic and tactical problems such as would arise if the United States Navy were opposed to possible enemy navies. The War College is not charged with the making of war plans, but its mission has been recently stated, "To assist in the preparation of naval officers for high command in war." And the Junior Course has been defined, "To fit lieutenant commanders and lieutenants for staff duty afloat, or for the command of small units in time of war."

The outstanding feature of its activities in 1925 has been characterized as "Studies of aviation as it affects the strategical and tactical operations of the fleet."

Special Schools for Naval Officers.—In accordance with the system that has been in operation now for several years, officers are prepared for special and regular duty at schools of widely varied character, such as the Submarine School at New London, the Naval Torpedo Station at Newport, and the Naval Air Station at Pensacola. The last has attracted more attention during the past year than any of the others. According to Captain J. J. Raby, U. S. Navy, Commandant of the Air Station [See *Naval Institute Proceedings*, September, 1925], the classes, made up of young line officers and marine officers who volunteer for the duty, vary in size from 40 to 70 members. "The course is nine months, the first month being devoted to ground school, the next five to seaplane training and ground school combined . . . and then three months to landplane training and advanced seaplane work." In one of the tests somewhat after the middle of the course, "The student is required to do two loops in succession, reverse turns, falling leaf, right and left spins, one hour of formation flying, and a precision landing test that consists of climbing to 6,000 feet, spiraling to 3,000 feet, cutting the switch to the magneto so that gravity is the only force acting on the plane, then making two complete turns in a spiral, and effecting a landing within 200 feet of a set mark."

Educating the Enlisted Men.—Every year the Navy must recruit on the average 20,000 men and train the larger number for the especial work required. There are trade schools at the four great training stations and at other places where 2,000 men may be given courses varying from six to thirty-two weeks. Thus those selected have the opportunity of qualifying as electricians, machinists, blacksmiths, coppersmiths, radiomen, pharmacists, bakers, musicians, etc. The great mass of the enlisted personnel, however, must obtain on board ship, the education which enables them to advance in rating. The Navy has prepared seventy-four different courses of study which are furnished free to enlisted men by the Training Division of the Bureau of Navigation. These courses have been divided into three general classes: (1) "Rating courses" (instruction necessary for a man to advance from a lower to a higher rating—e.g., from radioman third class to radioman second class); (2) "general technical courses to increase naval skill" (e.g., installing a distilling plant or a Curtis turbine); (3) "academic courses to further the general education of the individual" (e.g., arithmetic, chemistry, United States history, Spanish). The Training Division says in a statement made in 1925 that about 35,000 of these courses were issued the preceding year. "The conditions under which they are used vary from large study classes with several hours of instruction each week to the single man on a small ship, who pursues his course under the direction of one of the officers of his ship."

Evolutions of the Fleet.—The war game at Hawaii, followed by the cruise of the fleet to Australia and New Zealand during the spring and summer of 1925, was the greatest single contributor to naval education during the year. A statement of the results, being to a considerable degree confidential, will not be attempted here. But it required no vast technical knowledge of the naval profession to understand that the great school of the fleet is the school of experience.

The Spirit of Naval Education.—The ideal of naval education was interpreted by Rear Admiral William V. Pratt, U. S. Navy, President of the Naval War College, in an address, October 22, 1925, on the inauguration of Captain Ralph Earle, U. S. Navy (retired), as President of the Worcester Polytechnic Institute: "To make good disciplined Americans, fit for any service, out of the young men who come to us from all walks of life—this is one of the Navy's foremost works, a work to which we dedicate our lives. We not only give them through our various schools an education which is highly technical, but send them out finished, disciplined men, and above all good Americans, Americans who stand ready to fight your battles if the country ever needs them. This, I believe, is the best work that your Navy does for you in time of peace."

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Major, General Staff, U. S. Army

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PART FOUR
ECONOMICS AND BUSINESS

DIVISION XIV
ECONOMIC AND BUSINESS CONDITIONS

GENERAL STATE OF BUSINESS

By Solomon S. Huebner
Professor at the University of Pennsylvania

Introductory — A Year of Good Business, Although Not of Boom Proportions.—With the exception of a few leading industries, the general condition of business during 1925 may be described as satisfactory and even flourishing. Comparisons, when based upon statistical data relating to business, must always take into account the nation's normal growth from one decade to another. When this is done, the year 1925 clearly indicates a distinct advance over any year since the last high record of 1919-1920. In one important respect even—the security market—the present year has probably shattered all records of recent times, both with respect to volume of transactions and market appreciation. Here sales, as measured by the number of shares traded in on the New York Stock Exchange, have exceeded those of 1924 by 70 per cent. and of 1919, the previous banner year, by 40 per cent.

Meanwhile the average price of railroad stocks has been elevated to a level which is 16 per cent. in excess of the 1924 average, and 35 per cent. over that of 1921. For industrial stocks the average price has increased by nearly 50 per cent. during the present year, and the October average exceeds the 1921 level by over 54 per cent. Such a spectacular rise in industrial stocks has seldom, if ever before, been experienced within so short a time. The stock market is generally regarded as a discounter of future business conditions. If that view be true, then the future would seem to hold much in store by way of business prosperity. Although not yet of boom proportions, the year 1925 considerably surpasses any previous year since 1920, and is clearly developing a powerful business momentum.

Résumé of Leading Indices of Trade.—A brief résumé of such indices for the first nine or ten months of the year will serve to show the extent to which 1925 exceeds any year since the boom of 1920, and the following depression of 1921. Bank clearings (for 10 months) exceeded those of any similar period, and were 16 per cent. in excess of those recorded for 1924 and 24 per cent. over those of 1920. Railroad volume of traffic for 1925 is record-breaking, with the car loadings by far the largest during the later months of the year. Net earnings in the meantime increased nearly 10 per cent. during the first half of the year as compared with the same period of 1924, while during the month of August, the last for which detailed data is available, the increase has extended to 23¼ per cent. Pig iron production exceeds that of 1924 by

18 per cent., and is almost as great as that recorded for 1920. Copper production during the past ten months also exceeds that of 1924 by over 7 per cent. Building permits for the first nine months of the year exceed those of 1924 by 14 per cent., and total 2½ times the volume of any year prior to 1922. Compared with 1924, 1923 and 1922 (10 months) foreign exports are larger by 8, 18, and 27 per cent. respectively, while imports exceed by 16, 8, and 36 per cent.

Business failures, while approximately the same in numbers for the last three years, nevertheless show a substantial decrease in the volume of liabilities involved, the decline in this respect for the first ten months of 1925 being 30 per cent. as compared with 1924. In fact, for October of the present year, the rate of bankruptcy, both with respect to number and liabilities involved, was lower than in any corresponding month since 1920. Financing operations exceed those of 1924 (for 9 months) by 14 per cent. and those of 1923 and 1922 by 44 and 22 per cent., while new incorporations are larger than those of 1924 by 30 per cent., although still far behind the record-breaking figures of 1919-20.

Along many other leading lines of production the increasing momentum of 1925, as compared with the period since 1921, is clearly apparent. Production of automobiles and trucks during the first ten months of the present year shows an increase over 1924, for the same period, of approximately 13 per cent., while for gasoline the corresponding increase in production is 18 per cent., for bituminous coal 5 per cent., lumber 5 per cent., cement 11 per cent., boots and shoes 5 per cent., and cotton consumption 18 per cent. Recent trade bulletins also indicate that with respect to hides and leather, paper, wool and silk, the demand is well sustained with prices showing a tendency to increase. The rate of employment and wages is now (October, 1925) about the same as that prevailing at the close of 1920, and slightly exceeds the level of October, 1924. Dividend payments of industrial corporations are well maintained, and in many instances, especially in the later months of the year, there have been numerous dividend increases and stock allotments. For the first 11 months of 1925 (Babson figures) industrial dividend payments have exceeded those of the same period in 1924 by 5 per cent., and those of 1923 and 1922 by 10 and 13 per cent.

The number of business indices apparently showing diminished volume of transactions or price tendency is extremely limited. Where such a showing is presented the result is quite natural or not necessarily subject to an unfavorable interpretation. Despite a substantially increased volume of business along nearly all lines, the general level of commodity prices has fortunately shown little advance during the past three years; and the average index price now stands about midway between the yearly average for the last pre-war year, 1914, and the highest point reached following the war, namely in 1920. Similarly, the bond market for gilt-edged investment securities, which reflects quite consistently the tendency in interest rates and commodity prices, has, as will be explained later, experienced little change during the past three years with respect either to the volume of transactions or the general level of price quotations.

Statistics.—The following discussion presents various tables which summarize the business conditions of 1925 in comparison with those of 1924 and earlier years, as shown by those leading barometers of trade* that are generally accepted as the truest index of business conditions. These tables have been grouped under the discussion of the various special subjects to which they relate. The tables relating to "Security Market Transactions," "Security Market Prices," "Volume of Financing," and "New Incorporations," indicate the activity during the year in the security market as well as the condition of the investment demand. The table relating to "Money Rates" furnishes a view of conditions surrounding the money market during 1925. The tables on "Check Transactions," "Imports and Exports of Merchandise," "Production and Price of Pig Iron," "Unfilled Tonnage of the United States Steel Corporation," "Copper Production and Copper Prices," "Railroad Earnings," "Building Operations," "Business Failures," and "Index Numbers," serve to explain the year's activity along mercantile, commercial and manufacturing lines. For purposes of comparison, the figures are given by months for the years 1925 and 1924, and to make possible a further comparison, the totals for the several items, wherever possible, are also given for a number of preceding years.

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* The author is indebted for the statistical data presented in many of the following tables to the periodic compilation prepared from authentic sources by the Babson Statistical Organization, and issued in *Babson's Reports on Fundamental Conditions.* In the collection of data much assistance was also obtained from the excellent compilations and reviews published periodically in the Commercial and Financial Chronicle.

IRON AND STEEL TRADE

By Solomon S. Huebner

Professor at the University of Pennsylvania

Iron Production.—The 1925 figures of iron production indicate that this basic industry has recovered considerably from the moderate slump of 1924, and that its condition at present may be described as good, although not of boom proportions. For the month of October, the latest for which figures are available at the time of writing, pig iron production in the United States amounted to 3,023,000 tons, as compared with 2,477,000 tons for the corresponding month of 1924, 3,149,000 tons for 1923, 2,638,000 tons for 1922, and 1,247,000 tons during the depression year of 1921. For the first ten months of 1925, total production aggregates 30,128,000 tons, as compared with only 25.635,000 tons during the corresponding period of 1924, an increase of nearly 18 per cent. It should be noted, however, that this year's production for the first ten months is about 12 per cent. under that of 1923 for the same period. Compared with the depression years of 1921 and 1922, however, this year's production (for the first ten months) is larger by about 130 per cent. and 43 per cent. respectively. Despite the substantial increase in production, as compared with 1924, the price for the product (No. 2 Southern at Cincinnati) has not experienced a corresponding rise. For the first ten months of 1925, the price has averaged $23.74. As compared with this figure the average price for the corresponding months of 1924 is $24.13, and for 1923, $28.58. During the latter part of 1925 there has been a distinct tendency towards a rise, and for the month of November an average price of $25.05 is reported.

PRODUCTION AND PRICE OF PIG IRON

Source of data—*Babson's Statistical Service.*
(000 omitted from production.)

	1924		1925	
	Tons	Price	Tons	Price
January ...	3,019	$25.55	3,370	$24.05
February ..	3,075	26.55	3,214	24.05
March	3,466	26.55	3,564	24.05
April	3,233	26.35	3,259	24.05
May	2,615	25.55	2,931	24.05
June	2,026	24.05	2,673	24.05
July	1,785	22.05	2,664	23.89
August	1,887	21.55	2,704	22.55
September .	2,053	21.55	2,726	22.93
October ...	2,477	21.55	3,023	23.75
November .	2,510	21.80	....	25.05
December .	2,962	23.80	....	....

		Tons	Price
Totals	1924........	31,108	$23.91
	1923........	40,059	27.87
	1922........	26,880	23.93
	1921........	16,544	26.68
	1920........	36,415	44.47
	1919........	30,582	32.18
	1918........	38,506	36.52
	1917........	38,185	40.07
	1916........	39,043	18.67

The Steel Trade.—The volume of the steel business is fairly well indicated by the record of unfilled orders of the United States Steel Corporation. Such orders, usually considered an excellent index of this branch of business, show an average of 4,227,123 tons for the first ten months of 1925 as compared with 3,906,885 for the corresponding months of 1924, 6,328,823 tons in 1923, 5,418,373 tons in 1922, and 5,544,712 tons in 1921. In other words, the unfilled orders of the United States Steel Corporation for the first ten months of 1925 show an increase of slightly less than 10 per cent. as compared with the corresponding period of 1924. This increase is only moderate and loses its significance when compared with the average unfilled orders for the years prior to the year 1924. It is interesting to note that during the five years of great prosperity from 1916 to 1920 inclusive, the record of unfilled tonnage reached such high figures as 10,300,000 tons in 1920 and over 11,000,000 tons in 1917.

UNFILLED TONNAGE U. S. STEEL CORPORATION

Amount last day of month.
Source of data—*Babson's Statistical Service.*

January	4,798,429	5,037,323
February	4,912,901	5,284,771
March	4,782,807	4,863,564
April	4,208,447	4,446,568
May	3,628,089	4,049,800
June	3,262,505	3,710,458
July	3,187,072	3,539,467
August	3,289,577	3,512,803
September	3,473,780	3,717,297
October	3,525,270	4,109,183
November	4,031,969	....
December	4,816,676	....

Totals 1925............	4,227,123
1924............	3,906,883
1923............	6,328,823
1922............	5,418,373

THE COPPER TRADE

By Solomon S. Huebner

Professor at the University of Pennsylvania

Production and Price.—The total production of copper in the United States for the first eight months of 1925 was 1,133,800,000 lbs. as compared with 1,048,800,000 in the corresponding period of 1924, an increase of slightly over 8 per cent. August production in 1925 of 137.0 million lbs. compares with 133.0 millions for the same month in 1924, 131.0 millions in 1923, 99.7 millions in 1922, and 21.4 millions during the depression year of 1921.

The foregoing figures indicate that production of the metal has increased but slightly during the past three years. Similarly there has also been but slight change in the price of the metal. For the month of September, 1925, the average daily price per lb. for electrolytic copper at New York was 14.46 cts. as compared with a monthly average of 14.79 cts. for January of the same year, and with a yearly average of 13.16 cts. for 1924, 14.61 cts. for 1923, 18.56 cts. for 1922, and 12.65 cts. for the depression year of 1921.

Unlike most other types of basic industries, the copper trade has evidently not recovered the prosperous position it held prior to 1921. Average monthly production during the present year is much lower than for the years 1916-18, being only 141.7 million lbs. as compared with 159.0, 157.0 and 161.0 millions respectively for the three years referred to. The present average price of 14.46 cts. for electrolytic copper at New York compares with the average annual price of 17.50 cts. for 1920, 18.90 cts. for 1919, 24.68 cts. for 1918, 29.19 cts. for 1917 and 28.46 cts. for 1916. As a matter of fact, during March of 1918 the monthly average price reached the really remarkable height of 35.74 cts.

Copper Stocks. The continued low demand for copper seems to have had its unfavorable influence upon the price of leading copper shares. Using Babson's representative list of twenty leading copper stocks, we find that the average price of these shares stood at only 28.0 for the first ten months of 1925 as compared with 29.8 for the same period in 1923, 33.2 in 1922

COPPER PRODUCTION

Source of data—*American Bureau of Metal Statistics.*

(Unit: 1,000,000 pounds.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.
1925	149.6	137.9	149.8	141.3	141.1	140.0	137.0	137.1	....	....	....	....	....
1924	133.3	131.4	130.2	132.1	131.2	127.9	129.6	133.1	127.6	137.9	136.6	135.3	132.2
1923	112.2	102.7	121.6	117.9	125.5	125.5	125.4	131.1	125.3	132.1	127.8	129.7	123.0
1922	25.8	37.4	62.3	77.0	92.0	95.2	93.5	99.7	95.0	103.4	101.6	104.7	82.3
1921	85.9	76.5	89.1	51.1	24.2	19.4	17.8	21.4	20.9	24.6	22.3	18.6	39.3

and 35.9 in 1920. It is interesting to note that these same shares averaged 42.8 in 1919, 55.2 in 1917, and 57.1 in 1916. As will be explained later, in connection with the security market, the copper group of shares is exceptional with respect to recent price movements, in that it has not participated in the same way as have the rail and industrial groups of stocks in the tremendous bull market of the last few years.

COPPER (ELECTROLYTIC) PRICES

Source of data—*American Metal Market.*

(Unit: Average daily price in cents per pound, prompt delivery, at New York.)

	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916
Jan. ...	14.79	12.59	14.66	13.60	12.85	19.02	20.05	23.50	30.26	24.10
Feb. ...	14.54	12.85	15.50	12.97	12.79	18.61	16.91	23.50	35.22	27.46
Mar. ...	14.17	13.65	16.96	12.84	12.23	18.36	15.01	23.50	35.74	27.44
Apr. ...	13.52	13.36	16.81	12.71	12.54	18.54	15.40	23.50	32.19	29.31
May ...	13.50	12.93	15.63	13.29	12.83	18.28	16.00	23.50	32.32	29.81
June ...	13.47	12.49	14.88	13.71	12.76	17.97	17.65	23.50	32.57	27.49
July ...	14.07	12.57	14.59	13.90	12.35	18.61	21.71	25.89	28.90	25.60
Aug. ...	14.59	13.31	14.05	13.96	11.76	18.44	22.22	26.00	27.13	27.36
Sept. ...	14.46	13.08	13.60	13.88	12.11	18.04	21.95	26.00	25.45	28.26
Oct. ...	....	13.04	12.81	13.80	12.75	16.30	21.50	26.00	23.50	28.64
Nov. ...	....	13.70	12.89	13.79	13.16	14.39	19.96	26.00	23.50	32,22
Dec. ...	....	14.32	12.98	14.22	13.67	13.48	18.48	25.28	23.50	33.84
Avg. ...	....	13.16	14.61	13.56	12.65	17.50	18.90	24.68	29.19	28.46

FOREIGN TRADE

BY SOLOMON S. HUEBNER

PROFESSOR AT THE UNIVERSITY OF PENNSYLVANIA

Volume of Foreign Exports.—Exports for the first nine months of 1925, as reported by the Bureau of Statistics of the Department of Commerce, total $4,504,828,015, and considerably exceed the corresponding total for 1924, the gain being 380 millions. This gain is particularly significant when we reflect that exports of the first nine months of 1924 exceeded the corresponding period of 1923 by 84 millions, and that those of 1923 again exceeded the corresponding figures of 1922 by another 204 millions.

Although falling far short of the enormous exports of the fiscal years of 1919 and 1918, when the totals were $7,224,000,000 and $5,919,000,000 respectively (due largely to the needs of devastated Europe and the prevalence of exceedingly high prices for leading groups of exports), this year's total for the first nine months nevertheless exceeds the corresponding total for the pre-war year of 1914 ($1,733,000,000) by about two times.

It is therefore clear that our export trade has continued to flourish, and if the pace of the preceding nine months continues, the total bids fair to reach

4¾ billions. If the lower general level of prices is taken into consideration this total is not far behind, judging from the volume of goods shipped as distinguished from the number of dollars involved, the 7 and 6 billions of 1919 and 1918.

Volume of Foreign Imports.—With respect to foreign imports, the tendency during the first nine months of 1925 has been similar to that explained for exports. The total of $3,504,828,015 for that period exceeds the corresponding total of 1924 by 409 millions. Compared with the imports during the first nine months of the pre-war year of 1914 ($1,327,000,000), the corresponding total for 1925, is 2.3 times as great.

With respect to the balance of trade, the tendency is somewhat in favor of the imports. During the present year (for nine months) the balance of exports over imports is 427 millions, as compared with 55 millions for the same period in 1924. These figures compare with an excess of 406 millions in 1913. Expressed in percentages, however, 1913 shows exports to exceed imports by over 30 per cent., whereas for 1925 the figure is only 14 per cent.

IMPORTS AND EXPORTS OF MERCHANDISE, BY MONTHS

(Compiled by *Commercial & Financial Chronicle.*)

	1925	1924	1923	1922	1913
Imports					
January	$ 346,165,289	$ 295,506,212	$ 329,253,664	$ 217,185,396	$ 163,063,438
February	333,457,369	332,323,121	303,406,933	215,743,282	149,913,918
March	385,378,617	320,482,113	397,928,382	256,177,796	146,194,461
April	346,090,956	324,290,966	364,252,544	217,023,142	155,445,498
May	327,518,721	302,987,791	372,544,578	252,817,254	133,723,713
June	325,215,735	274,000,688	320,233,799	260,460,898	131,245,877
July	325,648,257	278,593,546	287,433,769	251,771,881	139,061,770
August	340,074,140	254,542,143	275,437,993	281,376,403	137,651,553
September	349,000,000	287,144,334	253,645,380	298,493,403	171,084,843
October	....	310,751,608	308,290,809	276,103,979	132,949,302
November	....	296,147,998	291,333,346	291,804,826	148,236,536
December	....	333,192,059	288,304,766	293,788,573	184,025,571
9 mos. end. September	$3,078,549,084	$2,669,870,914	$2,904,137,042	$2,251,049,455	$1,327,385,071
12 mos. end. December	....	$3,609,962,579	$3,792,065,963	$3,112,746,833	$1,792,596,480
Exports					
January	$ 446,443,088	$ 395,172,187	$ 335,416,506	$ 278,884,469	$ 227,032,930
February	370,676,434	365,781,772	306,957,419	250,619,841	193,996,942
March	453,652,842	339,755,230	341,376,664	329,979,817	187,426,711
April	398,254,668	346,935,702	325,492,175	318,469,578	199,813,438
May	370,945,110	335,088,701	316,359,470	307,568,828	194,607,422
June	323,347,775	306,989,006	319,956,953	335,116,750	163,404,916
July	339,645,551	276,649,055	302,186,027	301,157,335	160,990,778
August	379,862,547	330,659,566	310,965,891	301,774,517	187,909,020
September	422,000,000	427,459,531	381,433,570	313,196,557	218,240,001
October	....	527,171,781	399,199,014	370,718,595	271,861,464
November	....	493,572,921	401,483,872	379,999,622	245,539,042
December	....	445,748,393	426,665,519	344,327,560	233,195,628
9 mos. end. September	$3,504,828,015	$3,124,490,750	$2,940,144,675	$2,736,731,692	$1,733,422,158
12 mos. end. December	....	$4,590,983,845	$4,167,493,080	$3,831,777,469	$2,484,018,292

BUILDING OPERATIONS

By Solomon S. Huebner

Professor at the University of Pennsylvania

New Construction.—The 1925 figures of new building construction, judging by the value of permits issued for twenty leading cities (representing all sections of the United States) as compiled in the Babson Reports, present a condition of unusual activity in this important field. For the first nine months of 1925 such operations in these twenty cities aggregated $1,826,892,440, as compared with $1,599,896,629 for the corresponding period in 1924, and $1,152,274,000 in 1923. For 1921 and 1920 the corresponding totals were only 715 millions and 660 millions respectively. The total for 1925 thus shows an increase of 14 per cent. over that of 1924. In fact, the present year's total indicates operations to more than 2½ times the value of permits for any year prior to 1922.

The reports of the F. W. Dodge Corporation, for the twenty-seven northeastern states, indicates a total value of building contracts for the first nine months of 1925 of 3,748 million dollars as compared with 3,875 million for the corresponding period of 1924, approximately 3,603 million in 1923, and about 2,500 million for each of the three years 1919-21. Commenting on these figures, the *Commerce Monthly*, published by the National Bank of Commerce in New York, makes the following summary observation:

> In 1922 an enormous program was undertaken and the volume has been maintained in the face of higher costs while the value of contracts awarded has increased steadily each year thereafter. Residential building has been the most important single item. Year by year it has shown substantial gains whereas the total of non-residential construction has run along at practically a stable level. In the 27 eastern states covered by the F. W. Dodge reports contracts awarded for residential building cost from 1.3 billion dollars in 1922 to 1.8 billions in 1924. The total of all classes of non-residential construction has been maintained at approximately 2 billion dollars annually. There have been fluctuations, however, among the different classes included in non-residential work, of which the more important are commercial, industrial, public utility and semi-public construction. . . . Demand, cost of construction and supply of capital are the most important forces that control the building industry. Three principal factors in the demand which has resulted in the sustained program of the last four years may be distinguished—requirements of normal growth, demand resulting from a higher standard of living and the making up of the wartime shortage.

BUILDING OPERATIONS

(20 leading cities as reported by the *Babson Service.*)

	1924	1925
January	$148,599,406	$145,108,427
February	192,041,915	168,526,271
March	304,563,188	220,141,413
April	181,440,251	262,817,727
May	185,436,394	207,295,721
June	165,037,403	207,661,239
July	135,689,997	225,093,087
August	146,408,204	204,104,944
September	140,679,871	186,143,611
October	170,706,359	218,919,741
November	142,166,542	....
December	149,696,105	....

Totals,	1924.........	$2,062,465,635
	1923.........	2,059,384,719
	1922.........	1,567,616,840
	1921.........	996,388,684
	1920.........	790,526,650
	1919.........	741,004,899
	1918.........	225,792,878
	1917.........	394,177,475
	1916.........	619,712,525

BUSINESS FAILURES

By Solomon S. Huebner

Professor at the University of Pennsylvania

Number of Failures.—The year 1925 bids fair to show about the same number of business failures as the year 1924. By averaging the Dun and Bradstreet figures (according to the Babson compilation) the number of business failures during the first nine months of the present year total 15,233 as compared with 14,992 during the same period of 1924, 13,773 for 1923, 17,806 for 1922, and 13,659 for 1921. The year 1925 thus shows an increase in the number of bankruptcy failures of only about 1.5 per cent. over 1924. As compared with the boom years of 1920 and 1919, however, when failures totaled only 8,693, and 5,893 for the entire year, the number of failures seems large, being about twice as great. During those unusual years, however, nearly every line of business was exceedingly active at extremely high prices and with extraordinary profits, whereas during the present year business as a whole, although prosperous, has not yet reached the same boom proportions. But allowance must also be made, in favor of 1925, for the great expansion since 1919-20 in the number of business concerns reported upon by the two aforementioned mercantile agencies.

Liabilities Involved.—But while the number of failures may seem large, the volume of liabilities involved in the failures presents a much more favorable view. During the first nine months of 1925 total liabilities of failures amounted to only $349,192,175 as compared with $496,167,861 for 1924, a decrease of nearly 30 per cent. For the corresponding periods of 1923, 1922 and 1921, the volume of liabilities amounted to 372 millions, 499 millions and 493 millions respectively. For the years 1920 and 1919, however, and for the reason already indicated with respect to the number of failures, the liabilities presented a solvency record for smallness, namely, 187 and 89 millions respectively. The present situation (for the first ten months of 1925, as well as with respect to the last month reported on, namely, October) is well summarized by the *Commercial and Financial Chronicle* in the following statement:

Comment.—"Insolvencies in the United States during October were fewer in number than in any October since 1920; likewise, the amount of indebtedness reported. There was a small increase in the number of defaults last month over the precedin month, but October failures ar usually more numerous than in September. Liabilities reported fo October, however, were not only les than for September, but smaller tha for any month since August, 1921 with the exception of two months September and June, 1923. According to the records of R. G. Dun & Co., on which these comments ar based, there were 1,581 commercia defaults last month, with a total indebtedness of $29,543,870, as agains 1,465 in September, owing $30,687,319, and 1,696 in October, 1924, fo $36,098,804. For ten months of the current year, 17,664 commercial failures have been reported with liabilities of $371,293,691, against 16,922 during the corresponding period of 1924, with liabilities of $466,822,258.

"The detailed statement for October this year shows 408 defaults in manufacturing lines, with an indebtedness of $11,264,337; 1,111 trading failures owing $13,529,784, and 62 insolvencies of agents and brokers for $4,749,749. The corresponding figures for October, 1924, were respectively: 411 manufacturing defaults for $15,619,253; 1,186 trading failures owing $16,121,861, and 99 agents and brokers for $4,357,690. Some improvement for October this year appears in the report for all three classes."

BUSINESS FAILURES

Average of Dun and Bradstreet as per *Babson's Reports.*

	Liabilities		Number		Totals for Year	Liabilities	Number
	1925	1924	1925	1924			
January	$59,397,509	$87,109,976	2,329	2,170	1924	$619,039,866	20,167
February	40,545,452	55,368,623	1,724	1,651	1923	575,049,704	18,943
March	35,539,170	81,298,717	1,757	1,737	1922	636,872,319	23,048
April	43,892,159	61,079,874	1,803	1,717	1921	691,589,786	19,835
May	38,390,311	52,994,376	1,670	1,778	1920	340,207,659	8,683
June	37,854,581	36,075,784	1,591	1,589	1919	112,762,173	5,983
July	33,150,821	43,176,211	1,568	1,582	1918	150,888,013	9,682
August	31,567,818	48,062,478	1,431	1,476	1917	174,501,082	13,446
September	28,864,354	31,001,822	1,350	1,292	1916	183,497,085	16,748
October	32,869,572	41,030,535	1,495	1,637	1915	293,206,642	20,603
November	....	30,317,883	....	1,562	....	....	.....
December	....	51,523,587	....	1,976	....	....	.....

RAILROAD TRAFFIC AND EARNINGS

By Solomon S. Huebner
Professor at the University of Pennsylvania

Volume of Traffic.—Available statistical data indicates a record breaking volume of traffic on American railroads. Average weekly revenue freight car loadings for October, 1925, stood at 1,107,482, as compared with 890,000 for the month of January of this year, 933,000 for all of 1924, 955,000 for 1923, 844,000 for 1922, and 755,000 for 1921. As reported by the *Commercial and Financial Chronicle* (issue of Oct. 10, 1925): "Freight car loadings continue to break all records of previous seasons, and railroad earnings over the country as a whole are nearly at peak figures."

Gross and Net Earnings.—The increased traffic referred to above, is reflected only slightly in the gross but more substantially in the net earnings of the carriers. *The Commercial and Financial Chronicle's* classified compilation of gross and net earnings for 190 railroads, representing 235,870 miles of road or essentially all of the total mileage for which monthly returns of revenue are filed with the Interstate Commerce Commission, shows that gross earnings for the first half of 1925 amounted to $2,887,608,623 as compared with $2,864,512,167, or practically no increase. Net earnings, however, amounted to $656,663,561, as compared with $597,855,833 for 1924, an increase of $58,807,728, or 9.83 per cent. Commenting on its detailed summary the *Chronicle* concludes: "The first and most obvious comment is that the showing for the first half of the year is satisfactory mainly by reason of the substantial improvement shown in the net earnings. The addition to net of $58,807,728, or 9.83 per cent., has been achieved with an addition of no more than $23,096,456 to the gross. It follows from this that the greater part of the gain in the net earnings is to be ascribed to a reduction in expenses."

Freight Car Loadings.—As previously indicated, the heaviest revenue freight car loadings occurred during the latter months of the year. Hence the later revenue returns are showing up much more favorably than the record for the first half of the year. Thus for August, the latest available figures at the time of writing, gross earnings show an increase of $47,021,764, or 9.26 per cent. over the same month in 1924, while the net earnings were larger by $31,821,455, or 23.26 per cent. Press accounts clearly indicate that this favorable comparative tendency is being continued, although detailed records have not yet been published.

RAILROAD GROSS AND NET EARNINGS, JAN. 1 TO JUNE 30, 1925

Source of data—*Commercial & Financial Chronicle.*

	Gross Earnings		Net Earnings		Increase (+) Decrease (—)
	1925	1924	1925	1924	
Group I, New England	$ 126,316,374	$ 126,654,115	$ 27,614,115	$ 24,452,843	+$ 3,161,272
Group II, E. Middle	915,516,267	911,753,324	193,916,261	181,501,639	+ 12,414,622
Group III, Mid. West	261,598,355	259,468,488	70,203,733	60,942,435	+ 9,261,298
Groups IV and V, Southern	451,731,239	430,890,490	122,770,797	103,790,608	+ 18,980,189
Groups VI and VII, N. West	545,580,858	558,769,276	112,434,811	107,695,108	+ 4,739,703
Groups VIII and IX, S. West....	437,471,050	420,231,323	97,382,580	80,664,026	+ 16,718,554
Group X, Pacific Coast	149,394,480	156,744,279	32,341,264	38,809,174	— 6,467,910
Grand total (190 roads with mileage of 235,870).	$2,887,608,623	$2,864,512,167	$656,663,561	$597,855,833	+$58,807,728

XIV. ECONOMIC AND BUSINESS CONDITIONS

CHECK TRANSACTIONS

By Solomon S. Huebner
Professor at the University of Pennsylvania

Total Clearings.—As an index of general business conditions, existing statistics of check transactions are regarded as probably the best available business barometer, partly because they reflect all lines of business activity, and partly because of their completeness nationally. For the first 10 months of 1925, these transactions exceeded any previous record. The total stands at $495,005,122,000, as compared with 426 billions for the same period of 1924, 408 billions for 1923, 382 billions for 1922, 333 billions for 1921, and 399 billions for 1920. The 1925 record thus exceeds the figure for 1924 for the same period, by over 16 per cent., and the previous high (1920) by over 24 per cent. Allowance must of course be made in these figures for the normal increase in the nation's economic development. Yet when this is done, the 1925 record indicates a satisfactory condition of business as compared with the years following the last high record of prosperity, namely, during 1920.

Transactions Outside of New York City.—With a view to excluding from the nation's total of check transactions the high volume of clearances arising from the speculative markets of New York City, it is important to note the figures for the country exclusive of this outstanding speculative center. Exclusive of New York City, clearings for the first 10 months of 1925 totaled $239,851,526,000, as compared with 214 billions for the same months of 1924, 212 billions for 1923, 181 billions for 1922, 165 billions for 1921, and 201 billions for 1920. The present year thus shows an increase of about 12 per cent. as compared with the preceding two years of 1923 and 1924, and of 19 per cent. over 1920. When allowing for the normal growth of the nation, these figures indicate clearly that 1925 business shows an improvement over 1924 but falls short of the prosperity era of 1920.

The gain of 1925, as indicated by the figures for the week ending October 10, is fairly well distributed throughout the country and is not confined to New York City, as is so often the case. By Federal Reserve districts, the clearings of this week (the last for which statistics are available at the time of writing), as compared with the corresponding week of 1924, show the following increases: Boston district (12 cities), 26.4 per cent.; New York (11 cities), 27.6 per cent.; Philadelphia (10 cities), 26.8 per cent.; Cleveland (8 cities), 11.7 per cent.; Richmond (6 cities), 21.9 per cent.; Atlanta (13 cities), 34.4 per cent.; Chicago (20 cities), 13.9 per cent; and San Francisco (17 cities), 14.4 per cent. Only in the middle states was the showing relatively poorer, namely, St. Louis (8 cities), Kansas City (12 cities) and Dallas (5 cities) with increases of only 8.7, 2.2, and 4.2 per cent. respectively, and Minneapolis (7 cities) with a decrease of 11.2 per cent. For all of the 129 cities referred to above, present clearings average 22.0 per cent. above those of a year ago. It should be noted that bank clearings, exclusive of New York city, are generally regarded as the best single barometer of general business conditions, and that, as will be explained later, there has been no material change in the general level of commodity prices during the past three years, a factor that often distorts clearance statistics as an index of the volume of business actually transacted in one year as compared with another.

Clearings in New York.—For New York City bank clearings amounted to $255,153,596,000 for the first 10 months of 1925, as compared with 213 billions for the same period in 1924 and 197 billions in 1923. This year thus shows increases over the preceding two years of nearly 20 and 30 per cent. respectively. It should also be noted that clearings in New York

CHECK TRANSACTIONS

Source of data—*Babson's Reports.*

(000 omitted.)

	Exclusive of New York		Inclusive of New York	
	1925	1924	1925	1924
January	$25,101,829	$22,298,127	$52,498,281	$44,611,051
February	21,033,442	19,692,672	43,957,941	39,666,803
March	24,372,965	21,182,616	50,949,191	42,399,494
April	23,653,023	22,268,980	47,803,258	43,081,632
May	23,048,723	21,076,799	49,113,776	42,179,650
June	24,716,286	21,018,023	51,544,608	43,068,483
July	24,864,818	21,556,997	50,600,772	43,284,136
August	22,300,257	20,022,814	45,223,501	40,674,832
September	23,875,858	20,904,588	48,410,325	41,738,992
October	26,884,325	23,722,298	54,903,469	46,115,467
November	....	21,274,514	....	44,145,081
December	....	25,292,267	....	52,991,851

	Exclusive of New York	Inclusive of New York
Totals, 1924	$260,310,695	$523,957,472
1923	256,556,999	495,097,836
1922	222,152,058	463,987,457
1921	199,087,442	405,976,001
1920	242,069,771	484,500,290

City for the past 10 months exceeded those for the remainder of the country by over 15 billions. Such a showing emphasizes the importance of considering New York City separately when interpreting the nation's bank clearings, particularly because it is the great stock and bond market center, as well as the speculative market center for leading commodities, such as cotton, sugar, coffee, and the semiprecious metals. As will be explained later, the volume of transactions in the stock market has greatly exceeded any previous record, and at the same time the general level of stock prices is exceptionally high. This increased volume of transactions at high prices is reflected in the clearings, and it is therefore only natural that the figures for New York City should not only be very large absolutely, but should also show a very substantial increase over the figures of the same locality as compared with previous years.

SECURITIES MARKET

By Solomon S. Huebner

Professor at the University of Pennsylvania

General Conditions.—All of 1925 was marked by tremendous, and at times violent, transactions in the stock market, accompanied by a rapid increase in prices. The excitement has been great on practically all American security exchanges, as well as on the curb market. If a rising and boiling stock market is to be regarded as a discounter of good business conditions, then the future holds much in store along that particular line.

With respect to stocks, speculation has been almost unprecedented and a considerable number of stocks, chiefly in the motor group, increased from 100 to 200 per cent. in price during the past year. During the latter months of the year, dividend increases have been many, as have also stock dividend allotments. The railroad group of stocks, as will be explained later, has enjoyed an average appreciation of market value of over 16 per cent. as compared with 1924, while in the case of representative industrial stocks the appreciation has been phenomenal, the rise in price in a single year exceeding 47 per cent. Along with this great appreciation in market value, the volume of trading has also been extraordinary. This year's total, for the first 9 months only, already exceeds that of 1924 for the same period by over 70 per cent., and that of the previous record-breaking year (1919) by over 40 per cent. Market tendencies seem to be all in favor of the speculative group of securities, and as regards bonds and standard investment preferred-stocks price changes during the present year have been almost negligible and the volume of trading has also been only fairly active.

Stock Prices.—The foregoing remarks relative to the general condition of the security market may be illustrated by Babson's Composite quotations for different groups of selected stocks. As regards his list of 20 representative railroad stocks, the 1925 October high average stands at 104.65 (the highest for any month in the year), as compared with 90.28 for the corresponding month in 1924, only 80.53 in 1923, 74.69 in the depression year of 1921, and 81.33 in 1920. For the first 9 months of 1925 the average high price stands at 100.60, as compared with 86.07, 85.35, 85.62, 74.35, and 76.30 for the years 1924 to 1920 inclusive. Compared with 1924, this year's 9 months' average represents an increase of over 16 per cent. in market value. Compared with the corresponding average of the depression year of 1921, the increase exceeds 35 per cent. Considered by months, the extremes are even greater than is indicated by averages. The high for September, 1925 (103.78), compares with the low of 65.52 for June, 1921, an increase of nearly 58 per cent. The primary cause of the present high level of railroad stocks has no doubt been the tremendous increase in freight haulings, the substantial reduction in the cost of many things that are needed for operation as compared with the period of 1920, and the abundance of funds for speculative operations for the rise.

Indexes of Rise.—Taking Babson Composite Prices for 20 leading an representative industrial stocks, th rise has been phenomenal and record breaking. The average monthly hig price increased during the first months of 1925 from 123.60 (average for January) to 147.73 (averag for September) or over 19 per cent Since that time the average has increased during October (to Octobe 21) to 150.29, as compared with the 1924 yearly average of 102.75, an increase of 47 per cent., and with 97.07 for 1923, 95.48 for 1922, and 75.77 for 1920. The last average obtainable for 1925 at the time of this writing, namely, 150.29, it is interesting to note, is considerably more than twice (115 per cent. increase) the lowest monthly average of 1921, namely, 69.86 for July of that year. Such a spectacular rise in industrial stocks has seldom, if ever, been experienced before in so short a time.

Copper Stocks.—Among the leading groups of stocks, the copper group alone has failed to participate largely in the general stock market rise. Again taking Babson's Composite Prices for 20 representative copper stocks, we find that the average for September, 1925, was 28.0, or about the same as the price of 27.6 for the same month of 1924. The 1925 nine months' average stands at 27.9 against 24.9 for the same period in 1924, an increase of 12 per cent., 30.6 in 1923, 33.3 in 1922, 25.5 in 1921 and 36.4 in 1920. While greater firmness in the price of the metal has been indicated during the past year, the quotation for electrolyte copper at New York now stands at only 14⅝ cents. The opinion seems to prevail that with production at an increased rate, the price of the metal is not likely to experience a substantial increase, and it is this fact that probably accounts for the aforementioned situation with respect to copper stocks as compared with the contrary tendency in the rail and industrial groups. We are also advised that present production of copper materially exceeds foreign and domestic shipments.

Bond Sales.—During the first 11 months of 1925, to November 21, bond sales on the New York Stock Exchange aggregated $3,074,106,000 or nearly 8½ per cent. less than the total of $3,356.701,000 for the corresponding period of 1924. While sales have been fairly large, they are not extraordinary when compared with those of recent years. Interest seems to be directed much more to stocks than to bonds and the tendency at present, judging from the volume of sales in special groups of bonds, seems to be in favor of the more speculative issues with their apparently higher yields. As one leading journal characterizes the situation, "the bond market is undergoing further readjustment as the reins of credit are slowly but effectively tightened throughout the country."

Bond Prices.—With respect to the price level, the 1925 bond market presents but slight change from that of the preceding three years. The bond market, as is usually the case, experienced its rise before the main movement for the rise occurs in stocks. From the average low of 69.4 (for May, 1920, and using the Babson list of 20 leading and representative bonds) the bond market rebounded rapidly to an average of 86.0 for December, 1921, an increase of 24 per cent. This rise represents one of the most sensational in the history of the American bond market, and occurred, as is usual with great bond price movements, during a period of business depression and low interest rates. Since December, 1921, the level of bond prices has remained remarkably constant, despite minor fluctuations. For the month of September, 1925, the Babson average stands at 89.9 as compared with 89.8 as the average for the whole of the first 9 months of the year. This 9 months' average, moreover, compares with 86.8 for the corresponding period of 1924, and with 84.4 in 1923 and 87.0 in 1922. The present lethargy of the bond market, as contrasted with the market for stocks, is no doubt generally traceable to the rising tendency of long term money rates, the flotation of numerous foreign government and industrial issues, and the unusual degree to which the population generally expends its surplus funds for motors or other luxuries, or devotes the same to speculative undertakings.

Volume of Stock Transactions.—All records of previous years, with respect to volume of stock transactions, have been greatly outdistanced by 1925. The previous record occurred during 1919 (just before the great liquidation of 1920) when shares traded on the New York Stock Exchange totaled 316,787,725. This year, from January 1 to November 21, inclusive, although still somewhat short of 11 months, total sales aggregate 400,674,500 shares. This compares with 230,497,460 shares for the corresponding period of 1924, an increase of 74 per cent. It already exceeds the total of all of the previous banner year of 1919 by nearly 27 per cent. Daily transactions during the last few months of 1925 have generally exceeded 2 million shares, and at the time of writing, weekly transactions totaled over 15 million shares. As a matter of interest, 1925 also gave the largest single day's transaction in the history of the New York Stock Exchange, the total being nearly 3¼ million shares, or consid-

SECURITY MARKET TRANSACTIONS
(Shares.)

	1925	1924
January	41,570,543	26,857,386
February	32,794,456	20,721,562
March	38,294,393	18,315,911
April	24,844,207	18,116,828
May	36,647,760	13,513,967
June	30,750,768	17,003,140
July	32,812,918	24,318,182
August	33,047,248	21,809,031
September	37,109,231	18,184,860
October	54,091,794	18,332,992
November	....	41,657,077
December	....	43,101,361

	Stocks *	Bonds †
Totals, 1918...	146,768,000	$1,975,238,500
1919...	320,046,100	3,397,630,000
1920...	232,646,600	3,887,623,000
1921...	179,680,100	3,465,791,000
1922...	262,472,100	4,116,498,000
1923...	242,864,300	2,734,839,000
1924...	288,195,000	3,783,873,000
‡ 1925...	369,203,900	2,632,762,000

* Stocks are in number of shares.
† Bonds are in dollars worth of par value.
‡ Up to and including October 31, 1925.

erably in excess of the previous high on May 9, 1901, the day of the famous Northern Pacific corner.

Stock transactions have been consistently large all through the year, although the greatest volume of trading occurred during the latter months. For the first 9 months of 1925, share trading on the New York Stock Exchange totaled 307,871,524, as compared with only 178,840,867 for the corresponding period of 1924, an increase of 72 per cent. Even when compared with the first 9 months of the previous record year of 1919, the 1925 total of 307 million exceeds the 224 million total of that year by 37 per cent.

SECURITY MARKET PRICES

(Babson Averages of New York Stock Exchange Prices.)

20 R. R. Stocks			20 Ind. Stocks			20 Copper Stocks			20 Representative Bonds		
	1925	1924		1925	1924		1925	1924		1925	1924
Jan.	100.78	83.06	Jan.	123.60	100.66	Jan.	31.3	24.1	Jan.	88.7	85.2
Feb.	100.86	82.61	Feb.	122.86	101.31	Feb.	31.0	23.9	Feb.	89.2	85.0
March	100.96	82.01	March	125.68	98.86	March	27.6	23.4	March	89.4	85.1
April	96.64	83.43	April	122.02	94.69	April	25.3	23.6	April	89.9	85.8
May	99.98	83.34	May	129.95	92.47	May	25.9	23.4	May	90.9	86.5
June	99.10	86.41	June	131.01	96.37	June	26.2	23.3	June	91.0	87.8
July	99.75	90.41	July	136.50	102.14	July	27.5	25.9	July	90.1	88.9
Aug.	103.53	92.65	Aug.	143.18	105.57	Aug.	28.4	28.7	Aug.	89.3	88.4
Sept.	103.78	90.71	Sept.	147.73	104.95	Sept.	28.0	27.6	Sept.	89.9	88.6
Oct.	105.10	90.28	Oct.	156.52	104.08	Oct.	28.9	26.2	Oct.	90.3	88.8
Nov.	108.10	96.53	Nov.	159.39	111.38	Nov.	30.5	28.1	Nov.	90.4	89.0
Dec.	.....	99.50	Dec.	.....	120.51	Dec.	...	31.8	Dec.	...	91.0

FINANCING AND INCORPORATION

BY SOLOMON S. HUEBNER

PROFESSOR AT THE UNIVERSITY OF PENNSYLVANIA

Volume of Financing.—The total of corporate, foreign government, farm loan, and municipal financing during the first 9 months of 1925 aggregated (according to the detailed compilation of the *Commercial and Financial Chronicle*) $5,286,457,287. Of this total $4,524,708,265 represented new capital, and $761,749,022 the refunding of previous issues. The total is surprisingly large and greatly exceeds that for the corresponding period of any of the preceding four years. It exceeds the total for the first 9 months of 1924 ($4,670,355,955) by nearly 14 per cent. Similar totals for 1923, 1922 and 1921 were 3,663, 4,335 and 2,986 millions. The year 1925 thus exceeds 1923 and 1922 by 44 and 22 per cent. respectively, and the depression year of 1921 by 77 per cent. Of the 1925 total, corporate bonds and stocks represent 4,274 millions, foreign government and corporate securities 467 millions, farm loan issues 125 millions, and municipal issues 1,083 millions.

NEW INCORPORATIONS

(In Eastern States with Authorized Capital of $100,000 and over.)

(Taken from *Babson's Reports.*)

	1925	1924
January	$ 677,712,000	$878,704,700
February	431,200,300	661,048,500
March	806,402,000	808,923,700
April	886,592,491	528,857,000
May	616,116,995	519,897,000
June	1,003,270,000	455,022,400
July	1,066,860,000	572,195,750
August	972,734,800	398,950,000
September	572,750,635	478,689,000
October	585,422,120	543,490,000
November	....	574,096,000
December	....	734,854,000

Totals,	1924........	$ 7,154,719,050
	1923........	9,370,737,719
	1922........	8,400,153,390
	1921........	7,959,121,300
	1920........	14,999,044,200
	1919........	12,678,229,600
	1918........	2,399,749,600

Incorporations.—In this respect also, the year 1925 shows great activity. During the first 10 months new incorporations in the eastern states with an authorized capital of $100,000 or over (taken from the Babson reports) are reported as aggregating $7,619,061,341, as compared with $5,845,769,050 for the same period of 1924, and with 7,603 millions in 1923, 6,778 millions in 1922 and 6,973 millions in 1921. The year 1925 thus shows to date an increase of over 30 per cent. as compared with 1924 and 13 and 9 per cent. over 1922 and 1921. The present total, however, is far behind the showing (for 10 months of the year) of the boom years of 1919 and 1920, when totals exceeded 10 and 13 billions respectively. These large totals, however, were due to abnormal conditions. Prior to 1919, owing to war conditions, the government had placed drastic restrictions on new capital flotations, and new incorporations in the eastern states fell to the low level of 2,134 millions in 1918. With the removal of these restrictions a complete reversal at once occurred, and the huge increase in 1919 and 1920 is traceable chiefly to the fact that many proposed incorporations which would have occurred in 1918, but which were forbidden, became a reality as soon as possible thereafter. Credit inflation, and the refilling of greatly depleted stocks of many types of goods, owing to the war, also served as contributing factors.

CORPORATE, FOREIGN GOVERNMENT, FARM LOAN AND MUNICIPAL FINANCING

FOR FIRST 9 MONTHS OF 1925

Source of data—*Commercial & Financial Chronicle.*

	New Capital	Refunding	Total
1925	$4,524,708,265	$761,749,022	$5,286,457,287
1924	4,070,579,806	599,776,149	4,670,355,955
1923	3,090,009,423	573,554,861	3,663,564,284
1922	3,553,992,641	781,255,309	4,335,247,950
1921	2,479,473,287	515,705,517	2,986,178,804

THE MONEY MARKET

BY SOLOMON S. HUEBNER

PROFESSOR AT THE UNIVERSITY OF PENNSYLVANIA

Money Rates.—Despite violent speculation on the security exchanges, an unusual rise in the general price level of stocks, and a substantial increase in general business, money rates have remained reasonably low. Although showing a distinct tendency to harden, as is indicated by the recent increase of the Federal Reserve discount rates at Boston, Philadelphia and Cincinnati to 4½ per cent., they have at no time indicated a credit stringency. For the month of November, 1925, the monthly average rate on four to six months' prime commercial paper is 4⅜ per cent. as compared with an average rate (by months) for the first ten months of the year of 4⅛ per cent. The yearly average thus far is the same as that for 1924 for the same period, and compares with corresponding yearly averages of 5⅛, 4½, 6⅞ and 7½ per cent. for the years 1923, 1922, 1921 and 1920.

With respect to call loan rates at New York, the tendency towards a rise has been somewhat greater than in the case of commercial paper rates. For the month of November, 1925, the call rate has averaged 5 per cent., and on various occasions the rate has gone beyond this figure; whereas during most of the first half of the year the average rate usually fluctuated between 3¾ and 4 per cent., and for all of the first 10 months stands at 4 per cent. The present monthly average of 5 per cent. compares with 3¼ per cent. as the full year's average for 1924, 4⅞ per cent. for 1923, 4¼ per cent. for 1922, 6 per cent. for 1921, and 7⅞ per cent. for 1920.

Demands for Credit.—From many sources come warnings of the possible influence of the present speculative wave in the security and real estate markets upon interest rates, and the opinion is general that the chief demand for increased credit has been in the field of stock exchange and real estate speculation. In its recent review of credit expansion, the National City Bank of New York (bulletin of November, 1925) summarizes the situation very fully. It points out that the loan, discount and investment showing of the member banks of the Reserve System has undergone a material change during the last three years. It explains that in March of 1922 such loans, discounts and investments aggregated $14,527,000,000, whereas on October, 1925, the total had expanded to $19,326,000,000, an increase of about $4,800,000,000, or 33 per cent. Yet these banks, it is explained, transact only about one-half of the nation's banking business. The new gold holdings of the nation, it is explained, have been employed, but of the total aforementioned increase in credits, $2,000,000,000 is declared to represent investments purchased by the banks to keep their funds employed; another $2,000,000,000 is stated to have been loaned on stocks and bonds; while only $750,000,000, between a sixth and a seventh of the total increase, is described as having gone into commercial paper, and mostly during the years 1922 and 1923. The report concludes as follows:

> The influence of the gold importations of the last two years has not gotten directly into the general trade situation. . . . The new supplies of credit have been absorbed by the stock and bond markets and to some extent by the real estate operations. The conditions were favorable to a rise of prices of stocks and bonds, for both have been depressed during the war and after, and since it was in order for an advance to occur, this was an attractive field for speculation, particularly in stocks. Borrowing for the purpose of buying stocks and bonds has been an important factor in their advance.

MONEY RATES

Source of data—*Babson's Statistical Service.*

	New York Monthly Average				Average Bank Rates: England, France and Germany		Gold Movements	
	1925		1924					
	Time	Call	Time	Call	1925	1924	1925	1924
January	3¾	3⅜	4⅞	4⅜	7	6½	$68,488,143 *	$44,855,037
February	3¾	3⅞	4⅞	4⅜	7	6⅔	46,997,181 *	34,606,134
March	4⅛	4	4⅞	4⅛	7	6⅔	17,767,094 *	33,505,001
April	4⅛	3¾	4⅝	4¼	7	6⅔	12,734,062 *	44,027,578
May	4	3¾	4½	3¼	7	6⅔	1,997,130 *	40,480,360
June	3⅞	4¼	4	2⅛	7	6⅔	2,286,345 *	24,913,102
July	4	4⅛	3⅝	2⅛	6¾	6⅔	5,787,660	18,507,245
August	4⅜	4¼	3⅜	2	6½	6⅔	2,726,046	15,752,524
September	4⅜	4⅛	3⅜	2	6⅓	6⅖	2,686,430 *	2,076,654
October	4⅜	4¾	3½	2⅜	6⅓	6⅔	22,701,000	15,576,372
November	4⅜	5	3½	2⅝	6⅓	6⅔	....	13,173,202
December	...	...	3⅝	3⅝	...	6⅞	....	29,400,604 *

* Indicates excess of exports.

INDEX NUMBERS AND THE COST OF LIVING

BY SOLOMON S. HUEBNER

PROFESSOR AT THE UNIVERSITY OF PENNSYLVANIA

General Price Level.—The price level of 1925 indicates a slightly increasing tendency, especially in the latter months, as compared with the years 1923 and 1924. Today the average stands about midway between the yearly average of the last prewar year, 1914, and the highest point reached following the war, namely, in 1920.

For the first 10 months of 1925, Bradstreet's index number averages 13.8612, as compared with a high of 20.8690 for the month of February, 1920, and with 8.9985 for the yearly average for 1914. The present year's level thus averages 54 per cent. higher than that of 1914, but nevertheless represents a decline of 34 per cent. from the high of 1920. With respect to retail prices, the decline has also been substantial since 1920, although not to the same extent. In 1920 much of the economic discussion centered around the abnormal cost of living, especially in view of the numerous strikes that prevailed at that time. Today, outside of the anthracite coal shut-down, there are few strikes of large proportions. Employment during October of 1925, judging from the number employed (New York State Department of Labor figures) is about the same as that prevailing at the close of 1920, and during the years 1922 to 1924 inclusive. Wages, on the other hand, according to the same figures, stand at 223 compared with an average of 220 for 1922, 188 for 1921, and 264 for 1920, the year of great inflation along all lines. Most of the economic discussion of today does not emphasize the abnormal cost of living as in 1920, but seems to be centered upon a better adjustment between wholesale and retail prices in important instances, especially with respect to the cutting down of distribution expenses between producer and consumer.

Index Numbers.—For the month of October, 1925, Bradstreet index number averaged 14.1520, as compared with 12.9987 for the corresponding month in 1924, and with 14.0974 in 1923, 12.5039 in 1922, and 11.1879 in 1921. For the first 10 months of 1925, Bradstreet's average index number of 13.8612 is about 9 per cent. higher than the corresponding figure for 1924 (12.7526), but 1924, it must be remembered, represents a decrease of over 5 per cent. as compared with the corresponding number of 1923.

The London *Economist's* index number also indicates but slight variations with respect to English prices, although here the tendency has been in the direction of a decrease rather than an increase. For the month of October, 1925, this number averaged 4,427 as compared with 4,729 for the corresponding month of 1924, and with 4,339, 4,303, 5,004, and 7,746 for the years 1923, 1922, 1921 and 1920 respectively. For the first ten months of 1925 this index number averaged 4,576, as compared with 4,626 for 1924, or a slight rise, as compared with the 9 per cent. increase indicated by Bradstreet's for American prices. Compared with the high of 8,352 for the month of April, 1920, the present figure of 4,427 (October average) represents a decline of 47 per cent. However, compared with the 1914 average of 2,643 it still represents an increase of 67 per cent.

YEARLY AVERAGE OF PRICES

	Bradstreet	London Economist
1901	7.57	1948
1902	7.88	2003
1903	7.94	2197
1904	7.92	2136
1905	8.09	2342
1906	8.41	2361
1907	8.90	2508
1908	8.00	2223
1909	8.51	2231
1910	8.98	2407
1911	8.7129	2542
1912	9.1867	2699
1913	9.2115	2704
1914	8.9985	2643
1915	9.8531	3238
1916	11.8236	4216
1917	15.6385	5418
1918	18.7117	6036
1919	18.6642	6226
1920	18.8096	7746
1921	11.3695	5004
1922	12.1185	4303
1923	13.4028	4339
1924	12.8672	4661

Babson's index numbers (relating to a group of outstanding wholesale commodities entering largely into business, namely, hides and leather, print cloth, petroleum, iron and steel, rubber, paper, wool, building materials, non-ferrous metals, and bituminous coal) also indicates a fairly constant situation during the last four years, the first 9 months' average of 1925 of 167 comparing with 162, 175 and 161 for the corresponding periods of 1924, 1923 and 1922 respectively. During the depression year of 1921 the corresponding average fell to 159, while during the boom year of 1920 the same average reached the record breaking height of 284 (294 for the April individual average). As compared with the average for the first 9 months of 1920, the 1925 corresponding average represents a decline in this important list of basic commodities of nearly 40 pe cent. All the leading index number thus indicate that, after the firs violent drop during the depressio year of 1921, a rebound of norma proportions occurred, but that thi increase has been very gradual during the past three years, with a sligh tendency towards a further increase during the present year.

TABLE OF INDEX NUMBERS

	Bradstreet		Babson		London Economist	
	1925	1924	1925	1924	1925	1924
January	13.9347	13.2710	163	164	4855	4580
February	13.8852	13.1966	170	169	4768	4662
March	13.8353	12.8957	169	169	4772	4668
April	13.6854	12.6574	164	168	4680	4640
May	13.3173	12.5568	162	164	4550	4637
June	13.6177	12.2930	164	158	4458	4527
July	13.8526	12.2257	170	155	4351	4531
August	14.2438	12.6231	169	155	4446	4657
September	14.0878	12.8095	170	155	4450	4626
October	14.1520	12.9987	171	154	4427	4729
November	14.3173	13.3499	...	157	4327	4847
December	......	13.8070	...	160	....	4833

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DIVISION XV

ORGANIZATION AND CONTROL OF BUSINESS

CONTROL OF PRODUCTION

By John F. Fennelly

Associate Editor of Commerce and Finance

Control of production may mean various things, but to the present generation it signifies above all else the artificial restriction on output through some sort of monopolistic control by producers; as in the case of trusts, etc.

Confusion as to Trusts.—The year 1925 revealed nothing to upset the general belief that, in the United States, we must always have the trust problem with us. Twenty years ago there was some unanimity of opinion as to what constituted monopoly and restraint of trade. Today, however, we are drifting on a sea of doubt more uncertain than ever regarding the wisdom of our established policies of attempting to enforce competition. "To be, or not to be; that is the question." When is a trust not a trust, and why? Or, if it is a trust, does it really matter? The confusion of thought on the subject is most apparent in the present dissension within the Federal Trade Commission which, during the past year, was continually split into two camps, divided not so much by economic opinion as by political differences.

International Monopolies. — The outstanding event of 1925 was not, however, in the field of domestic monopolies within the United States, but was the startling development of international control of raw materials. International monopoly is not a new phenomenon. It has been familiar to students of economics since the time of Adam Smith, and, in recent years, has been well exemplified by the diamond monopoly of South Africa. But now it has been forced upon the attention of the American public, in such a way as to leave no doubt of its importance. It has become a source of grave concern to our government officials who see in this condition the prospect of future trade wars and international ill-feeling.

Coffee and Rubber.—Coffee and rubber are the two commodities which have focused this problem so sharply in the public eye. The so-called "Defense of Coffee" in Brazil, inaugurated two years ago, still continues in operation. Last year it was followed by the Stevenson Plan for restricting the rubber output of the British East Indies. Both plans were started originally with the idea of obtaining "a fair price" for the producer. In each case, however, the producers have not been satisfied with "a fair price," but have pushed the restriction of output to a point where clear monopoly gains have resulted.

The rubber monopoly came into prominence last summer with the spectacular rise in the price of raw rubber to $1.21 a pound. This figure is so far above the cost of producing rubber as to constitute an undoubted case of monopoly of price. Coffee, on the other hand, fell off considerably during 1925 from the high price reached in 1924 when the valorization scheme began to take effect. Nevertheless, the price still remains much above what it would be under normal conditions of free competition. As a result American importations of coffee showed a marked decline during the past fiscal year.

Space does not permit any extended discussion of the details of the plans in question. Suffice it to say that monopolistic control in rubber, as well as in coffee, has been possible because of the concentration of such a large proportion of the world's supply within a small area. Thus, by holding surplus stocks off the market the producers have been able to obtain a greatly enhanced return for the restricted output.

Difficulty of a Remedy.—Now that we are face to face with the problem, the question arises as to what we are going to do about it. Are we to sit quietly by and continue to pay tribute to foreign monopolists, or are we to retaliate by establishing monopolies of our own?

It is easy to say that no permanent monopoly of raw material is possible because of the power of substitution on the part of consumers, and the stimulation to production in other parts of the world when the price rises above the natural cost of production. This is all very true, but it must not be forgotten that the process of substitution is a slow and painful one. Furthermore, in the case of a commodity like rubber, the stimulation to new production cannot affect the supply before five to eight years have passed. Meantime, the consumer suffers.

Possible Retaliation.—Has the United States done anything to retaliate for the protection of the American consumer? Most casual observers will be surprised to learn that important steps in this direction have already been taken, despite the protestations of government officials to the contrary. Thus Secretary Hoover has declared his opposition to all forms of retaliation except as a final resort. He has hinted at the power of this country to establish retaliatory monopolies on such basic commodities as cotton, copper, etc. He has even suggested the possibility of consolidated purchasing agencies in the United States for the protection of the consumer. All these alternatives, declares Secretary Hoover, are merely suggestions only to be considered in case we cannot achieve mutual trade agreements for the abolishment of all such international monopolies.

Monopoly of Capital.—But the American retaliation, already in effect, has not been in the form of anything so crude as the restriction of raw materials. It has come as the subtle result of our quasi-monopoly over the world's supply of capital. The United States is now in the singular position of possessing the one great reservoir of liquid capital in the world. Although we are only gradually realizing it, this has placed in our hands a power for good or evil that transcends in importance any monopolies of raw materials that have yet been established.

The other nations of the world are in crying need of capital to rehabilitate their industries laid waste by the war; a need that is more urgent than our need of coffee and rubber, and one which does not offer the possibility of substitution.

Interference by the United States Government.—Our government officials have been among the first to realize the importance of this situation, and last year began to wield this power for the purpose of coercing foreign countries. This control is entirely without legal sanction and has been effected through a sort of moral pressure from Washington to inhibit foreign loans to countries which we desired to bring to terms.

It was used first with considerable success in hastening the funding of the national war debts owed to the United States. By merely frowning on foreign loans to the nations whose debts remained unfunded, the federal government has been able to exert a pressure that a decade ago would have been thought impossible.

The most recent example of this quasi-monopolistic practice has been the refusal of our government to sanction a loan to Brazil for the purpose of strengthening the "Defense of Coffee." In fact, the weakness in coffee prices during the last months of 1925 was attributed directly to this governmental inhibition. How far this practice will be carried, or what the eventual outcome will be, it is impossible to predict at present. But at least we should recognize that we are not the only nation suffering from international monopolies. We are being forced to pay dearly for certain raw materials, and in turn are forcing other nations to come to terms before we will permit them to obtain access to our money market.

World Afraid of Production.—This world-wide tendency to restrict production by artificial means is the subject of much concern to seri students of economics. What world wants is more and chea goods of every variety and not vicious circle of international mono lies which can only result in maki us all poorer. This situation h been aptly described by B. M. And son, Jr., a prominent American eco omist, as a "World afraid of produ tion," when increased production the only solution of our econom problems.

PRICE FIXING

BY JOHN J. QUIGLEY

DEPARTMENT OF ECONOMICS, COLUMBIA UNIVERSITY

During the year just passed, distinct progress has been made in the direction of clearing up many of the uncertainties which have prevailed regarding the attitude of the government toward business activity. Nowhere was this progress more evident than in the problem of protecting the consuming public against excessively high prices for manufactured articles.

Interests Involved.—In examining the various instances of the development of governmental policy, we must be careful to keep in mind the several conflicting interests involved in the marketing problem. The manufacturer is in business for profit, and so long as the profit be a reasonable one, his claim should be respected. But the price must be kept within the scope of the consumer's purchasing power, not only for his welfare alone, but for that of the producer, as well. Through the very nature of the industrial system, the manufacturer is better able to protect his interests than is the consumer. The result has been an inequality, which the Federal Government has attempted to remove. In the past, the theory has been that all the interests concerned were best served through the maintenance of free competition between producers as well as consumers, and the government has endeavored to maintain such a relation in the market.

Progress.—The first measures taken to gain this end, due to partisan zeal and to ignorance of the facts, had hampering effect upon industry, a resulted in much confusion and u certainty. Court decisions under t new laws were contradictory. Tho business concerns which wanted conform to the law often found ther selves prosecuted for violations.

The government has aimed at th preservation of competition, but th interpreters of the law have found difficult to define competition. I some cases, business concerns hav been prosecuted for maintaining uniform price, and in others, for no maintaining a uniform price.

Gradually, with succeeding dec sions, a more definite policy of governmental control has been formulated. This growth of fundamenta attitude has largely resulted from th division of federal activity into several different fields, which, in turn was made necessary by the increasing complexity of business organization

The efforts of organized business t protect its interests in the market have taken two new forms. These are what is known as "Resale Price Maintenance," and the Trade Association And it is in its attempts to analyze and to control these activities, that the development of governmental policy has been most apparent during 1925.

Resale Price Maintenance.—In this matter the Supreme Court had already made its attitude fairly clear in the previous year. In several important decisions it was explained that as soon as a manufacturing organization had sold its product to the retailer, its control over the price of the article ceased. No obstacle, however, could be put in the way of any company refusing to sell goods to a retailer who cut the price on those goods. But even here no written agreement or understanding could be made between the manufacturer and retailer, fixing the retail price.

And this position has been maintained by the government during the past year. In the only case that has been tried, the terms of the decision are the same as in the previous year. The Court believes that price-cutting is a form of competition, and is to be encouraged, whereas resale price maintenance, by a manufacturer through his distributors or dealers, is a form of price-fixing, preventing competition, and is therefore to be condemned.

We may say, then, that no progressive change has occurred during the year in this department of governmental control of price-fixing. But certainly the definite attitude of disapproval has been maintained and strengthened. And that is as much as could have been expected in this field. For most economists are of the opinion that desirable competition is prevented by successful resale price maintenance, and they look upon the restraining influence of the government as a salutary and progressive development.

Activities of Trade Associations.—With regard to this field of action experts are not so unanimous in their opinion. It is exceedingly difficult to determine whether or not the trade association does restrict competition and so raise prices. The remarkably rapid growth of these organizations in every important industry indicates that the members are finding them financially beneficial. Their representatives claim that this benefit takes the form of decreased expenses of production, which is being passed on in lower prices to the consumer. The Department of Justice has maintained during the whole year that these benefits consist in the higher prices that result from combination, and that they are confined to the members. And this division of the government has acted in accordance with its conviction, by prosecuting several of the largest and most successful of these associations. So the Courts were faced with the problem of defining the policy of the government.

During the year, several important decisions have been rendered. With each one, the attitude of the government has been clarified, and its policy made more definite. Early in the year, what were destined to be the most important cases in this field, were tried in the Circuit Courts. In Michigan, twenty members of the Maple Floor Manufacturers' Association were charged with gathering information concerning stocks, production, sales, and freights, and limiting their production and shipments accordingly. They were convicted of restraint of trade. The case was appealed. At about the same time, in New York, the members of the Cement Manufacturers' Protective Association were charged with similar united action, and convicted. This case also was appealed.

Soon afterward, fifty members of the National Association of Chair Manufacturers, charged with disseminating trade information with the intent to raise prices, pleaded guilty to the actual price increase, and were fined varying amounts, graduated according to the relative amount of business done and the relative financial standing of the companies. At the same time, two hundred and sixty-three large furniture companies, together with the secretaries and assistant secretaries of three national furniture associations, were indicted for gathering statistics which enabled them to control output and shipments in accordance with varying demand. This was in June.

Supreme Court Decision.—A few days later, the Supreme Court rendered a decision on the Hardwood and Cement cases, which had been appealed. In this decision, the verdict of the lower courts was reversed. That trade information had been gathered through an organized group, was admitted. But that the possession of information concerning its competitors, which enabled a manufacturing establishment to produce and distribute more intelligently, was ground for its conviction, was denied. The Court declared that the government had not proved that a destruction of competition had resulted from the actions of the associations, nor that unreasonable restraint of trade had resulted. It declared that even where uniformity of price had resulted, competition was not necessarily absent, especially since the uniform price was reasonable. The opinion went on to say that there was no evidence of any attempt to evade the law; that the Maple Floor Association, especially, had made particular efforts to keep within the spirit of the law. It recognized the importance of the stabilizing influence of the possession of complete and exact information, and declared that the resulting restraint of trade was reasonable.

It is important to note the emphasis that is here placed upon the preservation of competition and the non-increase in prices, for in it lies the explanation of the apparent inconsistency between this decision and those concerning the furniture associations. In the latter case the organized attempt to raise prices and the actual increase in price was definitely proved. In the former, no such attempt could be made evident in the work of the Hardwood and Cement Associations.

Effect of the Decision.—Evidently, then, the progressive tendency in the growth of government policy lies in this unique method of judging business organizations by the effect of their activity upon the welfare of the consumer. Since the present standard of such welfare is low prices, the government is confining its control of business to placing a restraint upon the artificial raising of prices through united action in restraint of competition. This is a new emphasis, something which has only been apparent this year. It is progressive, in that it puts government control of business in a new light, and makes its attitude clearer than ever before. In the words of George T. Buckingham, Counsel for the Cement Associati "The decision is a landmark in construction of the Anti-Trust La It will affect hundreds of trade sociations throughout the land. It probably the most momentous opini on the Sherman Act since the fam Standard Oil Case of 1912."

These decisions are significant, t for their psychological effects up industry. If they have indicated modified attitude on the part of t government, in more exact terms th have been employed heretofore, th indicate also that the government authorities are and will be more vi orous than ever before in enforci the law.

Attitude of Business Men.—B business men recognize this tenden and they appreciate what it will me in the future. Their reaction w clearly indicated in October, at t National Conference on Trade Ass ciations and Business Combinatio held by the Academy of Politic Science, in New York City. Represe tatives of the associations, addressin the sessions, made special referen to the effect of the recent decisio upon the future policy of trade ass ciations. They expressed gratific tion that the Court had given ec nomic considerations full weight making their decisions, that the had judged according to the presen or absence of evil effects, not of th opportunities for evil effects. The recognized the responsibility of kee ing good faith with the consumer tha had devolved upon trade association They emphasized the necessity o using data on trade conditions, no for fixing prices, but for improvin conditions and stabilizing prices a the competitive level. In the opinio of the association members, regulate production, made possible through th dissemination of information amon the members, will stabilize industr and make possible the elimination o the business cycle. However this ma be, in the process, competition may b helped more than harmed by trad association activities, in that all pro ducers, rather than only a few, wil have exact knowledge of market con ditions.

It is claimed by the trade associ

ations that the court decisions have removed the barrier to a great extension of their operations. They declare that the greatest future contribution of trade associations to business stability will be in the form of more complete and accurate information concerning all the stages of business activity and the making of this information available to all producers, distributors, and consumers. The true object of the trade association is to make competition more free, fair, and equal, to all concerned.

The Future.—It is evident that with the exceptions previously noted, the activities of trade associations to date have been solely in the direction of collecting information on conditions within the association, and the distribution of it to the members. In so far as prices have not been increased by this activity, the public cannot be said to have suffered. The vigilance of government control has been the most powerful factor in protecting the public interest in this way. In so far as existing associations have prospered, and new ones have sprung up, we may infer that their activities have benefited the members. The action of the Supreme Court in defining the bounds of such activity, and wisely refraining from unnecessary interference, has made this benefit possible.

The need for government control of business to prevent price fixing has not passed. But the wise distinction between appearances of evil and the fact of its existence, which distinguished the judicial attitude in 1925 should be continued. The Trade Association has large possibilities for good in the future extension of its activity. A wise vigilance on the part of the Federal Government can allow the good results full scope and forestall any evil effects. Any other policy will only inhibit the good without preventing the evil.

CONTROL OF STOCK EXCHANGES

By E. H. H. Simmons

President, New York Stock Exchange

Function.—Markets can be divided into two general classes, depending on the method by which prices are established within them. In closed markets the price-making function is exercised by a few men or even in some cases a single individual, and only slowly and indirectly can public opinion or public purchasing play any part in the process. In free markets, on the other hand, the business of price-making is not undertaken at all by the administrators of the market but is completely opened to public opinion and public purchasing and selling.

Stock exchanges belong very completely to the latter group. It is distinctly not the business of stock exchanges to make prices themselves, but rather to establish and conduct a ready and adequate system whereby prices can be formulated by public purchases and sales. It is therefore the entire American investing public, and not the dealers on the Exchange floor, that determines by its buying and selling, its interest or its indifference, the price levels for the securities dealt in there. The function of the New York Stock Exchange, for example, is clearly confined by the terms of its own Constitution, to providing facilities for the transaction of the business of its members, to maintaining high standards of commercial honor and integrity among them, and to promoting and inculcating just and equitable principles of trade and business.

Rise of New York Stock Exchange.—The present form of organization possessed by the New York Stock Exchange can best be understood by considering its past evolution. The earliest free and open securities market in New York was established about 1792; in form, it consisted simply of a dozen or more stockbrokers who transacted business with each other practically without rules or discipline in the public streets. In 1817 this group of stockbrokers decided, for their greater comfort and convenience, to house their market in a hired room.

This step, seemingly so trivial, was actually basic to the Exchange's entire subsequent development. For it at once became necessary to organize the brokers in a voluntary association with the usual offices of President, Vice-President, Secretary and Treasurer, and to introduce an elective and selective factor into the question of membership in it. In turn, the fundamental power of the market to make rules for its fair and efficient operation, as well as to discipline members who disobeyed such rules, became possible for the first time. A written constitution for the broker's association was formulated and adopted as soon as the market was moved under a roof and from the open street.

In the century which has followed this organization of the Stock Exchange in 1817, its administrative methods have naturally grown hand-in-hand with the volume of its business and the scope of its facilities. Admission to the Exchange's membership was more and more carefully supervised. Regulations as to the particular securities which could be bought or sold on the Exchange became more numerous and more critical in spirit. Methods and practices in trading on the floor were similarly subject to a constantly increasing control and regulation by the Stock Exchange itself.

In the Civil War period, the Exchange purchased its own building on Broad Street, which has subsequently been greatly enlarged and improved in equipment. In the 70s the electric stock ticker system was adopted for the transmission of Exchange price quotations and the telegraph began the transformation of the New York organized securities market from a local to a truly national status. In 1892 a systematic and regular system for the clearance of contracts made on the Exchange was established. These and other similar corollaries to the growing business done on the Exchange floor have since come to be separately incorporated, for the sake of convenience and efficiency, corporations subsidiary to and co pletely controlled by the Stock E change association.

Previous to the Civil War, the a ministrative methods of the Exchan resembled those of an old-fashion New England town meeting—legisl tive and even judicial questions we directly taken in hand by the enti membership. But when the Exchang membership attained its present si of 1,100 members, any such metho became impossibly clumsy and inef cient. Accordingly, the power to a minister the affairs of the Exchang was entrusted to a representati system and placed in the hands of Governing Committee of forty members, all of whom are subject t election by the entire membership an ten of whom are elected each yea The executive function is entruste to the President of the Exchange, bu the legislative and judicial function are exercised by the Governing Committee. The latter has, in turn, tended to delegate most of its importan routine tasks to smaller standing subcommittees drawn from its own membership, and special problems to similar special committees. In consequence, the type of organization developed by the New York Stock Exchange more clearly resembles a average American legislative body than the ordinary American business corporation. Unlike the latter, also, the New York Stock Exchange is not in business and is not designed to be run for a profit.

Present Authority of New York Stock Exchange.—As time has gone on, the scope of the Exchange's supervision over its members' business has steadily increased and to-day it is very extensive in both theory and practice. It is entirely within the power of the Exchange to limit or forbid trading on its floor in all securities save those which conform to its acute and comprehensive listing requirements; on the other hand, trading in any listed security can, at the volition of the Exchange, be at any time suspended or completely prohibited. Similar restrictions are enforced with respect to the Exchange's own membership; apart from purchasing one of the 1,100 existing "seats," a prospective member must satisfy the Exchange as to his financial responsibility and past business career. The distribution of Exchange quotations is carefully supervised lest they fall into the hands of undesirable outside parties and be used to work frauds upon the investing public.

Not only is the business of every Stock Exchange member completely subject to examination by the organization, but it can very quickly enforce disciplinary measures for breach of its rules by imposing fines or else suspending or expelling any member guilty of wrongful practice. Upon the more serious disciplinary cases the Governing Committee sits in a judicial capacity; because of its very great collective experience in the business, its decisions are just and speedy, and because of the complete power conferred upon it by Exchange members under the Exchange's Constitution, it has full power to punish wrong-doing by suspension or expulsion.

Results of the System.—The effect of this administrative machinery possessed by the Exchange upon the business conduct of its members is immediate and distinctive. Offenses which would not be punished by most courts at all, and by no court at once, are promptly and severely dealt with by the Exchange. The business of the Stock Exchange, as has been very generally recognized, is better and more closely regulated to-day by its own administrative machinery than it ever could be by the less speedy and less adaptable methods available to public officials undertaking any species of governmental control. After all, the test of any system of business control lies in the results which flow from it. Only twice in its history (1873 and 1914) has the New York Stock Exchange been forced to suspend dealings for any significant periods. Yet for over a century contracts for the purchase and sale of securities representing tremendous aggregate financial amounts have been effected on the Exchange without written documents, but merely on the commercial honor of its members expressed by oral agreements. Losses entailed by this remarkably free and rapid method of doing business have, nevertheless, proved so small as to be practically non-existent.

BLUE SKY LAWS

By William R. Shands
Virginia State Corporation Commission

Statutory Control of Sale of Securities.—It is almost impossible for one to discuss recent developments in Blue Sky Laws without referring at one place or another to the brief history of such legislation in this country. Although the first law of this kind in the United States was passed by Kansas in 1911, there are at this time forty-two states with similar acts regulating the sale of securities. Four other states—Colorado, Maryland, New Jersey and New York—have adopted laws intended to eliminate the offering for sale and selling of fraudulent and worthless securities within their boundaries, the acts in these states being in the form of fraud laws. While this form of control is much older than that involved in the Blue Sky Laws, it has recently undergone some very novel changes which will be referred to later in this article. No Blue Sky Laws or fraud laws are found in either Delaware, Nevada or the District of Columbia. Except for these two states and the District of Columbia, there are in all the states of this country laws designed to curb the losses taking place annually through the sale of fraudulent and worthless securities.

Blue Sky and Fraud Laws.—The distinction between a "Blue Sky" Law and a fraud law is that the former requires an affirmative act on the part of the State before securities covered by the act may legally be sold in that State, while the fraud acts are designed to prevent the sale of many of the securities that ordinarily would be refused under the Blue Sky Laws by making punishable frauds in connection with such sales. The former method is one by which steps are taken to eliminate the fraudulent securities at the start. The latter punishes those persons who sell such securities involving fraud in the State. The trend since 1911 has been towards the Blue Sky form of legislation, although the operation of the Martin Law in the State of New York is now being watched with considerable interest by the country at large. The supervision given by the Blue Sky Laws has now developed until practically all of the States regulate very carefully both the brokers and agents selling securities as well as the securities themselves.

Legislation of 1925.—The infancy of the Blue Sky Laws makes necessary constant changes in them in order to meet defects and objections as well as new schemes of fraud as they appear. A period of fifteen years has not yet developed one that those most familiar with such legislation will declare is perfect, although each year sees an advance. In spite of this fact probably no recent year has seen as many changes in the various Securities Laws—Blue Sky Laws and fraud laws—as 1925. In thirteen states, or about one-third of those where legislatures convened during that period, such changes were made, amendments to existing laws being enacted in six states, and entirely new laws, revoking old ones, being passed in the remaining seven.

Those states that changed their existing Blue Sky Laws, or as is the case in New York, its fraud law, were Vermont, Pennsylvania, Illinois, New York, Nebraska and South Dakota. Some of these amendments are of such a nature that it may be of interest to call attention to them.

New Provisions.—In Vermont the legislature considered a violation of its Blue Sky Law of such magnitude that it increased the punishment that might be given from ninety days in jail to one year. In Nebraska the Department of Trade and Commerce was given the right to disseminate from time to time by pamphlets or advertisements any information, regarding securities sold or offered fo sale in that State that it might deem to be of public interest or advantage Illinois made some very materia changes in its definitions of "securities," "issuer," "sale" and "dealer" o "broker," as well as of those securities embraced in the classification known as "Class A," adding thereto certain notes or bonds secured by a mortgage lien upon real estate or leaseholds. It also made provisions for the rapid qualification of certain classes of securities. South Dakota which contains in its law a provision that a license to sell securities in that State shall only be issued upon the condition that no Liberty or Victory Bonds shall be taken or accepted as payment or part payment for such securities, also amended its law as to certain of the exemptions.

New York Martin Law.—Because of the strategic position New York occupies in the financial world, the public has watched with much interest the enactment in that State of the "Martin Law," a modern fraud statute. Previous to its recent amendments it vested in the Attorney General, whenever it appeared to him that any device, scheme or artifice to defraud the public was being used or about to be employed in connection with the advertisement, purchase or sale within the State for the future delivery of any commodities dealt in on any exchange in the United States, or of any stocks, bonds, notes, or other securities, the power to require a statement concerning the subject matter. He was also given the power to make investigations and to bring actions to enjoin the matters complained of, and to prosecute personally violations of the Act or to refer such cases to the proper District Attorneys.

The amendments, while taking away none of the powers above referred to, now require dealers before offering any securities for sale in that State to publish in a paper designated as the "State paper" a notice as to such intention giving information as to both the dealer and the securities to be offered. The Attorney General is now able by following these notices to prevent in many cases the commission of any frauds in such sales and in others to eliminate it in its early stages.

Other States.—The states of Wisconsin, North Carolina, West Virginia, Utah, Minnesota, Indiana and Missouri, have enacted new laws revoking those previously in force. The law in Wisconsin now in effect, while passed as an entirely new statute, embodies more or less the principles of the former law. Here, too, the Commission is given powers to disseminate through advertisements and pamphlets information regarding offerings it considers fraudulent whether offered by persons within or without the State for sale to parties within the State by mail, advertisements, in person or otherwise.

In North Carolina the old law has been considerably changed in the new one. Here we find a provision embodied requiring that notes given in payment for stock sold under the act must contain language showing for what they are given. The act further provides that such a note shall state on the face thereof that it is "not negotiable under the negotiable instruments law." Promotion expenses and commissions for the sale of stock are limited to 5 per cent., an amount considerably lower than that now allowed in most of the other states.

In West Virginia, Utah, Minnesota and Indiana the new laws are more or less similar, differing, of course, as to certain details. These laws divide the securities into three groups; an exempt class, a class that may secure a quick qualification, sometimes called "qualification by notification," and a class that can only be qualified by furnishing the Commission detailed information. They also embody exemptions as to securities sold in certain transactions and contain provisions as to licensing brokers and agents who are engaged in selling securities.

Blue Sky Organizations.—Along with the development of the laws themselves there have been numerous organizations working for better laws and a more effective administration and enforcement of them. Among these are the National Association of Securities Commissioners, composed of the State officials charged with administering such laws, the Better Business Bureaus, the Investment Bankers' Association of America, the various Stock Exchanges, and other similar organizations. One of these organizations during 1924 made a proposal with regard to Blue Sky legislation designed to bring about, in so far as may be possible, the enactment of a uniform Blue Sky Law in the place of the forty-two different laws now in force and in 1925 succeeded in having some of the States partially adopt it in their new laws. A Committee of the Commissioners on Uniform Laws has also been studying the subject with an idea of drafting a Uniform Securities Law to be proposed to the various states.

Proposed National Legislation.—Blue Sky legislation has so far been limited to the individual states, but proposals have been made with regard to Federal legislation on the subject designed to supplement the legislation of the different states. One bill of this kind submitted to Congress in the past is the Denison Bill. This bill passed the House in the 67th Congress but failed to pass the Senate. Activities in its behalf continued during 1925, and it no doubt will again be submitted to Congress. In the meantime certain periodicals have proposed what is styled a "Federal Blue Sky Law," the purpose of which is to enact through a Federal statute provisions requiring anyone before using the mails in selling or in offering for sale any securities to file with the Postmaster General information concerning the securities to be offered or sold. This proposal is so new that the attitude of those most concerned with its enactment is not known.

Effect of the Laws.—The suggestion as to Federal legislation on the subject of securities regulation has usually been accompanied by an estimate as to the losses taking place through the sale of fraudulent and worthless securities, and from this has the conclusion been drawn that the Blue Sky Laws of the various states are failures. It is not believed that the conclusion is well founded. Heavy losses through securities frauds are admitted by all, but it is firmly believed that such losses are pitifully small compared with what such losses would be if there were no Blue Sky legislation. The various states with such laws have from time to time made estimates as to the savings effected through them that amply justify the existence of such statutes. If one doubts that the present Blue Sky Laws are successful, he has but to consider the effect in Georgia of a recent decision holding that its Blue Sky Law does not give the Securities Commission the power to regulate the sale of securities by the issuers thereof. In arriving at such results one cannot stop with ascertaining the securities refused as being the amount saved, since for every application refused many other fraudulent and worthless promotions have not even dared to ask for a license. This *i* *terrorem* effect has been increase with each of the numerous prosecu tions successfully conducted unde these laws during 1925.

It is probable that in this field as in many others the public has relie too much on the mere enactment o laws to remedy the evils complaine of. Developments during 1925, however, indicate that the states, while improving their Blue Sky Laws, are making only those changes experience dictates as being necessary, and as never before are attempting to bring to bear the full coöperation of all available agencies in suppressing securities frauds by a sound administration of the laws and the infliction of a sure and heavy penalty on all those who would take from our people their property and money through the sale of fraudulent and worthless securities.

PUBLIC CONTROL OF FUTURES

By Arthur Richmond Marsh

Editor of "The Economic World"

Cotton Futures Act.—Public control of the futures markets for important commodities like cotton, wheat and the other grains, provisions, etc., was first definitely undertaken in this country through the enactment by Congress in August, 1914, of the United States Cotton Futures Act, which was designed by its sponsors to control the behavior of prices on the great Cotton Exchanges in certain essential regards. Since this legislation seemingly affected only cotton merchants and manufacturers, a relatively small group of persons in the population, its far-reaching and in a sense revolutionary character was very little appreciated at the time. In reality, its adoption signified the practical abandonment by our Federal legislators of a principle, or doctrine, that had been scrupulously observed by legislative bodies in the United States and other countries of Anglo-Saxon tradition throughout almost the entire 19th century—the doctrine, namely, that the regulation of commodity prices, or of the markets where commodity prices are made, is no proper function of government, and that when government undertakes such regulation it not only impairs the natural economic freedom of the members of society but also injuriously affects the development and operation of the productive services upon which the material well-being of society depends.

Prices and Distribution.—As is well known, the opposite doctrine held virtually undisputed sway over men's minds in classical and mediæval times, not being seriously challenged either theoretically or practically until the very beginning of the modern industrial era. Only towards the end of the 18th century did the new science of political economy—or economics, as we now call it—gradually make clear the part played by prices in determining the distribution of the productive activities of the population in each given country in such wise that society as a whole may be assured of the needed supply of all the different categories of commodities, goods and services necessary to its existence and comfort. And with this new understanding of the beneficent economic function of prices came the perception that under conditions of social freedom this function will be completely fulfilled only if prices are allowed to respond freely to the influences of supply and demand without interference from government. Left to their own motion, prices will quickly correct both excessive and inadequate production in respect of cash and every kind of goods and services by bringing into operation the natural effort of those affected to adjust themselves to the respective conditions of loss or profit for themselves. So convincing was this new theory of prices and of the virtue of price freedom found by the best minds in the earlier years of the last century that by the middle of the century it was universally agreed in the great industrial and commercial countries like Great Britain and the United States that if society is to progress in a material sense prices must be wholly freed from governmental control. The correctness of this theory, moreover, was soon unreservedly accepted both by legislative bodies and by the courts, with the result that the last vestiges of the older governmental price regulation disappeared.

Legislation and Commodity Prices.—The enactment of the United States Cotton Futures Act by Congress unquestionably connotes a reaction from the doctrine of price freedom just described; and this legislation was the more significant because it was a venture in the field of commodity prices.

It is undoubtedly true that there had been indications of the coming of this reaction some years before, first in the emphasis laid upon questions of price in the anti-trust agitation, of the 80's and 90's, and then in the early insistence of the advocates of public railroad regulation upon the governmental control of rates. Of importance in the latter connection, also, was the re-assertion and enlargement of the well-nigh obsolete doctrine of the right of government to regulate the prices charged for all forms of production and service that are "affected with a public use or interest." Obviously, this concept, once generally accepted as valid, was readily applicable to an ever-widening circle of productive activities, since it is not difficult to assert of any form of production or service that concerns the lives or comfort of large numbers of people, that it is "affected with a public interest." In fact, as everybody knows, this has been occurring more and more frequently in recent years, and it now seldom happens that prices change uncomfortably in any of the great markets without exciting in many quarters an outcry that the public is harmfully affected, and that, therefore, government ought to step in and correct the evil. Furthermore, this idea is now regularly advanced whenever an extension of governmental control of prices in a new direction is proposed.

Price Control.—Despite the rapidity with which this reaction against the 19th century doctrine of complete price freedom developed in the last years of that century and the first years of this, American legislatures were long reluctant to establish a régime of actual price control by government. This reluctance is well illustrated by the fact that it was not until 1906 that Congress gave the Interstate Commerce Commission a kind of tentative authority to prescribe just and reasonable railroad rates, and not until 1910 that this authority was made absolute. The initiation of outright governmental price control for the railroad industry, however, was quickly followed by the application of the same principle to other services generally accepted as "affected with a public interest"—first of all the various public utilities and a little later even such a service as fire insurance. Thus in less than a decade before the outbreak of the European War the regulation of prices by government—whether the Federal Government or the Governments of the States—became an accomplished fact in this country in respect of numerous businesses rendering services grown indispensable to the convenience and comfort of the public at large.

Affected by Public Interest.—The next step was to extend the principle to the field of commodity prices; but here an initial difficulty was encountered in the seeming inapplicability of the rule that government is given the right of price regulation as regards certain businesses by the fact that the businesses are by their nature "affected with a public interest." Neither the production nor the distribution of commodities is "affected with a public interest" in any sense known to the law, however necessary the commodities may be to the life and well-being of society. In framing the United States Cotton Futures Act, however, Congress got round this difficulty by means of the assumption that, even though the absolute price of cotton cannot constitutionally be regulated by government, nevertheless cotton is of such importance in the national economy that the great central markets, or Cotton Exchanges, in which the world's dealings in cotton for future delivery determine the course of the price of the commodity, are practically "affected with a public interest" and may properly be subjected to governmental control in respect of methods and practices affecting the relationship between the basic prices made on the Exchanges and the prices commanded by the different grades and qualities of cotton in the various "spot" markets of the country.

Upon the theory that the price of future contracts on the Exchanges at any given time ought to be approximately the same as the price of Middling cotton in the "spot" markets, allowances being made for differences in the cost of transportation and the like, Congress provided in the Cotton Futures Act that only certain grades of cotton (those from Low Middling up) should be deliverable on future contracts on the Exchanges, and also that the value of the different grades, when delivered, should be determined, not by the commercial judgment of the members of the Exchanges, but by the mechanical process of striking an arithmetical average of the "grade differences" obtaining at the time of delivery in a list of ten Southern "spot" markets designated for this purpose by the Secretary of Agriculture. In other words, Congress, while not undertaking to prescribe the method by which the members of the Exchanges and their customers in the cotton trade and industry should fix the absolute price of the commodity from season to season, month to month or day to day, did assert the right of governmental control over the extremely important price relationships which concern cotton merchants and manufacturers almost as much as the absolute price.

Regulating Prices of Farm Products.—The United States Cotton Futures Act finally became law after the outbreak of the European War, and while the War was in progress Congress refrained from regulatory legislation with reference to other commodity markets, although such legislation was soon advocated in various quarters for the wheat and other grain markets. The demand for such legislation, however, was made less urgent by the excessively high prices attained by all the grains soon after the War began; and by the fact that after this country entered the struggle as a belligerent the Government assumed the function of guaranteeing the farmers a market for the foodstuffs they produced at prices assuring them a very handsome profit on their operations. Hence it was not until after the termination of the Government's price guarantees for wheat and the other grains early in 1921, the effects of which for the farmers were rendered more severe by the great price collapse of 1920-1921, that Congress set about framing a law, similar to the United States Cotton Futures Act, for the control of operations in the futures markets for grain and provisions, particularly the Chicago Board of Trade. This law, commonly known as the Capper-Tincher Act, was approved by the President on August 24, 1921; and it also restricted in important particulars the freedom of commercial action of those dealing in the markets in question, besides conferring extensive regulatory powers upon the Secretary of Agriculture. It should perhaps be said, however, that the provisions of this Act related somewhat less directly to prices, whether in an absolute or in a relative sense, than had those of the Cotton Futures Act. What the sponsors of the Grain Futures Act seem to have aimed at above all was governmental control of speculative operations in the grain markets, the assumption being that such operations had been largely responsible for the ruinous decline of wheat and other grain prices in the Summer of 1921. Thus the Grain Futures Act requires the disclosure to the Secretary of Agriculture of all transactions in future contracts made on the grain exchanges, and gives this officer of the Government large powers of intervention if he does not approve of the volume or nature of such transactions; whereas these provisions are not embodied in the Cotton Futures Act.

Extension of Governmental Control.—The cotton and grain futures markets are the only commodity markets in this country which have so far been subjected to positive governmental control through Federal laws. In this connection, indeed, mention should perhaps be made of the attempt of the Department of Justice early in 1923—largely inspired by Secretary Hoover, according to common report—to check a sharp rise of the price of raw sugar on the New York Coffee and Sugar Exchange through action in the Federal courts predicated upon the assumed applicability of the anti-trust laws to operations in that market; but this attempt came to naught as soon as the Government's case was presented before an experienced Federal judge, the case being dismissed as wholly without merit. It is to be noted, also, that the Federal Trade Commission, besides conducting repeated investigations of the cotton and grain exchanges—investigations that may be regarded as supplementary to the supervision of these exchanges by the Secretary of Agriculture—has busied itself with certain other commodity markets of an unorganized kind, like that for iron and steel and their products, and has caused the abandonment of such methods of price determination as the so-called "Pittsburgh plus" plan of the steel industry. Thus the area of actual or attempted governmental control of markets and commodity prices has been unmistakably extended in various directions in the years since the War.

Few Recent Indications of Exercise of Control.—On the other hand, it must be conceded that there have been few instances of the positive exercise of this governmental control over markets and prices during the year 1925. The Cotton Exchanges have not felt the hand of governmental authority during the year, notwithstanding a growing discontent in the cotton trade and industry with the price effects actually produced by the Cotton Futures Act. As regards the grain exchanges, it is matter of common knowledge that upon one or two occasions during the year the Secretary of Agriculture has been moved by widespread rumors of excessive speculative operations in the wheat market to call for detailed information as to the commitments of all persons or concerns dealing in wheat on the exchanges and, in particular, on the Chicago Board of Trade. It is generally understood, however, that these inquiries have failed to disclose either speculative or commercial activities of an inordinate and censurable kind—that is, activities which by their magnitude or their technical character have produced harmful effects in respect either of the distribution or of the prices of essential commodities. Hence the results of governmental control of the commodity markets during the past year may fairly be said to have been rather negative than positive.

CONTROL OF FOREIGN TRADE

By Julius Klein
Director, U. S. Bureau of Foreign and Domestic Commerce

During the year 1925 about twenty countries have executed more or less comprehensive revisions of their import tariffs or general changes in their duties. In addition, changes in the duties on specific articles or groups of commodities have taken place in nearly all countries.

Sweeping modifications have also been made in many of the official restrictions upon import and export trade—these measures of restraint being, in the majority of cases, either substantially relaxed or almost entirely eliminated. In certain countries, however, the movement has been in the opposite direction.

The negotiation of commercial treaties has been an important feature of the year's developments, about fifty sets of nations having taken up or concluded arrangements to govern trade relations between their nationals. Most of these treaties have included a "most-favored-nation" clause.

As regards measures designed to limit exportation, either directly or indirectly, the especially significant situations have been those relating to coffee in Brazil, where a system of artificial price control is in operation, and to crude rubber in the territories of British Malaya and Ceylon, whose restrictive legislation has occasioned grave embarrassment in the principal consuming countries.

Foreign Tariff Revisions.—Geographically distributed, the countries that have carried out fairly extensive alterations in import duties may be grouped as follows:

In Europe: Austria, Finland, Germany, Hungary, Iceland, Lithuania, Poland, United Kingdom, and Yugoslavia.

In America: British Guiana, Canada, Cuba, Newfoundland, Panama, and Paraguay.

In the rest of the world: Australia, British India, New Caledonia, and the Union of South Africa.

The extent and nature of the revisions have varied with the individual country. Thus, in the case of Austria, the revision was thoroughly going and generally upward; in the case of South Africa, it affected only selected groups of commodities, with the changes sometimes upward and sometimes downward; while in Cuba the revision consisted of adding to most existing duties a small percentage of increase on ordinary merchandise and a higher surtax on luxuries.

Outstanding Tendencies Observable.—Broadly viewed, certain general tendencies stand out. The motive of protection to established or nascent domestic industries was strongly marked in most of the tariff revisions of countries that are at all industrialized. Desire for increased revenue was a prominent motive in nearly all cases, particularly in the non-manufacturing countries and those depending upon customs collections for a substantial part of their governmental income. In a number of the newer countries of Europe, such as Poland, the object of the tariff changes has been to curtail the importation of goods which by them might be considered luxuries, for the purpose of rectifying the general trade balance and improving the exchange value of the nation's currency. On the other hand, the Governments of Canada and South Africa apparently regarded as primary the interests of their agricultural and manufacturing industries, and reduced the cost of bringing into those countries the equipment for agriculture or materials for industry which need to be obtained largely from abroad.

Changes Affecting Specific Commodities.—Besides the relatively comprehensive revisions, changes in the duties on individual articles or groups of commodities have been made during the past year in nearly all countries, to a greater or less extent, as developments in a particular line appeared to call for a readjustment of the conditions of admission of foreign goods.

Other General Revisions in Prospect.—General tariff revisions have been under consideration in a good many countries, including France, Switzerland, Greece, Cuba, Haiti, Colombia, Chile, Argentina, China, and Japan. The degree of progress on these prospective revisions has varied widely; some are expected to result in new tariff acts during 1926, while others may not reach the stage of definite formulation and enactment for another year or more.

Changes in Restrictions on Foreign Trade.—A statement of the revisions in import duties, especially in the countries of Europe, does not convey the full picture of the year's developments in foreign trade control, unless viewed in conjunction with the changes that have taken place during the year in the various official restrictions upon import and export trade.

Under the exigencies of the World War the movement of goods into and out of most European countries was made subject to governmental restrictions of various types. With modifications or extensions these were continued into the years after the war —in various forms, such as requirements for import or export licenses for each individual transaction, exchange restriction upon the credits obtainable for settlement of foreign obligations, or, on certain classes of goods, an absolute prohibition of import or export.

In most countries of Western Europe these governmental restrictions were gradually relaxed within a few years after the World War. In Central and Eastern Europe, however, where the older countries had suffered partition of territory or general economic dislocation, and where a number of new national entities had been created, there were the additional problems of working out a balanced economic structure, adapted to the new boundary lines and resources, and of developing some degree of stability in national budgets and in the value of national currencies. All these complicated the situation immensely and postponed the time when artificial and fluctuating controls upon the exchange of goods with other countries could well be relaxed.

The year 1925 has witnessed considerable progress toward the relaxation of unnatural and unsettling measures of trade control. It may, in fact, be regarded as distinctly ushering in (at least as regards most countries of Europe) a period when international transactions can be planned with assurance of relative freedom from administrative and unpredictable restrictions beyond those definitely set down in the customs tariffs, high as they may be. Perhaps the most striking development of this type during the year was the almost complete abolition of the import licensing régime of Germany which, since the War, had been so prominent a feature of the conditions of doing business with that country as to have made tariff duties, in most cases, of secondary consequence. This radical step took place on October 1, 1925, simultaneously with the bringing into operation of a schedule of higher import duties which alone are now to govern most importations. With some modifications and limitations, necessitated by the peculiar conditions in the country, the action of Germany has been paralleled during the last year or so in a number of other countries of Europe, including Austria, Czechoslovakia, and Hungary.

In certain European countries, particularly in Poland and Greece, the developments during the past year have been in the opposite direction of new and increased restrictions on import and export trade. These measures were rather of an emergency character, and may be expected to be resolved with the passing of the conditions creating them.

Few countries outside of Europe have built up restrictions on imports of ordinary merchandise; so, elsewhere, the year brought few changes.

Negotiation of Commercial Treaties.—The year 1925 has been marked by particular activity in the negotiation of commercial treaties. The fact that about fifty sets of nations have taken up or concluded arrangements to govern the trade relations between their nationals marks noteworthy progress in the process of adjustment to post-war conditions. It also indicates a greater readiness among nations to consider the mutual accommodation of their individual policies of trade control to the needs of commercial intercourse with other nations, so far as they are consistent with the internal interests of each contracting country. The number as well as the necessity of such treaties has naturally been increased by the new national entities, which need to work out a definite basis for trading, both with the older countries and among themselves.

It is significant that the great majority of the treaties of the past year or so have been built on the basic principle of reciprocal promises that each country would treat the other as well as the most favored nation. In many cases these treaties have also carried provisions for specific concessions in duties, or other privileges, on one or both sides. It has been exceptional, however, for a treaty not to carry assurances that if either of the contracting parties later establishes new concessions, or more favorable conditions, for the goods of any third country, the same privileges will be automatically extended to the other nation concerned, without further negotiations or compensations.

The movement for the restoration of equality of trade through commercial treaties has by no means been completed, and certain countries still appear to expect limited and exclusive arrangements, but the past year has witnessed the most important progress since the war in the direction of such equality.

Removal of Certain Handicaps Affecting German Trade.—The most important single development of the year was the termination, on January 10, 1925, of the five-year period during which Germany was obligated to accord most-favored-nation treatment in tariff and related matters to all the Allied and Associated powers, without any similar obligation on the part of those powers toward the products of Germany. The handicaps in various forms, established by the former Allied countries after the war, upon the admission of German good and the operations of German nationals in their territories, have bee very largely removed during the pas year, by the negotiation of commercial treaties readjusting the trade relations with Germany on a more reciprocal basis. Thus far, Germany has been successful in obtaining assurances of most-favored-nation treatment by treaties with the United States, the United Kingdom, Italy Greece, and substantially so with Belgium. Similar arrangements have been concluded with a number of the non-allied countries, including Switzerland, Austria, Hungary, and Portugal. The outstanding problems between France and Germany have naturally been the most difficult to adjust, and negotiations between them are still progressing.

Agreements Concluded by United States.—The United States has made substantial progress during the year toward harmonizing its treaty relations with foreign countries on the general basis of the new policy of unconditional most-favored-nation exchanges. The first thoroughgoing treaty of this type—that with Germany—was ratified by the United States Senate on February 10 and was made definitely effective from October 14, 1925. Temporary commercial agreements on substantially the most-favored-nation basis were concluded during the year by exchange of notes with Poland, Spain, Esthonia, and Finland, pending the working out of thoroughgoing commercial treaties. Similar modus vivendi had already been concluded with Czechoslovakia, Greece, Brazil, Dominican Republic, Guatemala, and Nicaragua. Permanent treaties with Hungary and Turkey await ratification by the United States Senate, and negotiations to the same end with a number of other countries are now under way.

Outside of Europe and the United States the year has been relatively quiet in the field of trade control, at least as affecting imports. In the matter of export control, however, which is of most concern to the Latin-American and Oriental countries producing raw materials, there have been certain significant developments.

Two of the salient situations are discussed below.

Coffee "Valorization" in Brazil.—About 60 per cent. of the world's total supply of coffee is produced on Brazilian plantations, and approximately 70 per cent. of the coffee consumed in the United States is supplied by Brazil. Ninety-three per cent. of all the coffee consumed by the American people comes from the four major producing areas, namely, Brazil, Colombia, Central America, and Venezuela.

Since Brazil dominates in production, and Colombian, Central American, and Venezuelan coffees command a price-premium over Brazilian coffee because of better quality, it follows that artificial price control on the part of Brazil, at higher than usual levels, brings about a relative price increase of the product of the other supplying countries.

For a number of years, Brazilian coffee has been subject to artificial price control, on the part of the Brazilian Government or one of its political subdivisions. One or both of the following methods have usually been adopted:

(*a*) Withdrawal from consumption of large amounts of coffee, through governmental purchasing in the open market, and subsequent resale at intervals when market conditions warranted absorption without depressing the market.

(*b*) Control of the planter's output, withholding in government warehouses, and daily release for export of a fixed quantity below consumption requirements, until such time as market conditions would permit the gradual release of accumulated stocks.

Since the latter part of 1924 this artificial price control—or, as it is commonly termed, "coffee valorization"—has been in the hands of the government of the State of São Paulo, Brazil. That State produces more coffee than any other part of the world—furnishing the great bulk of the Brazilian supply.

In December, 1924, the São Paulo State government enacted legislation providing for a permanent organization to administer coffee valorization. This body is known as "The Coffee Defense Institute," is semi-official in character, and is endowed with extremely broad powers. It is empowered to negotiate loans to carry on its operations; and, under the enabling act, it has already levied, upon each sack of coffee transported across the State, a transportation tax equivalent to 54 cents gold, the proceeds of which are to furnish a guaranty fund for a loan. Additional powers conferred upon the Institute comprise the organization and financing of an agricultural credit institution, the purchasing and selling of coffee in the open market, and the limitation of coffee exports.

During the crop-year ended June 30, 1925, valorization consisted mainly in limiting coffee exports. The average import price of Brazilian coffee, in the United States, increased nearly 55 per cent. over the preceding crop-year, with relative increases in the price of all other grades of coffee, while consumption declined materially.

Coffee importers, fearing a relaxation or removal of the Brazilian valorization restrictions, have, for more than a year, consistently followed a "hand-to-mouth" policy in their buying.

The peak in prices was reached early in the current year. A visible supply in excess of consumption requirements and the reduced milreis price, following the enforced upward course of Brazilian exchange, aided by other factors, caused a slight decline around the middle of the year, although the price level at present is far above normal.

Crude-Rubber Situation. — Although the legislation restricting exports of crude rubber from the important producing territories of Malaya and Ceylon was declared effective on November 1, 1922, the large stocks of rubber already accumulated in the primary, secondary, and consuming markets, the natural increase of production in non-restricted territories as soon as prices improved even slightly, and evasions of restriction through smuggling and forgery prevented its becoming really effective until some two years later. By the end of 1924 all these factors has been eliminated to a considerable extent; smuggling and forgery had been curbed, stocks everywhere had been reduced, and consumption had increased sufficiently to offset the increased production in non-restricted areas. The New York price on December thirty-one was forty cents per pound.

Early in 1925 it became apparent that rubber consumption during the year was going to be much larger than in any previous year, for the following reasons:—(1) The production and use of motor cars in the United States continued at a high rate. (2) The adoption of balloon tires, which consume 20 per cent. more rubber than high-pressure tires, was being accelerated. (3) General prosperity and industrial activity in the United States stimulated the demand for other sorts of rubber goods. And (4) The economic recovery of European countries created a greater use of rubber goods, principally automotive.

During the quarter-year ended February 1, 1925, Malaya and Ceylon could export only 50 per cent of their standard production at the nominal export duty; the normal working of the scheme increased this to 55 per cent. for the following quarter. Such a release was, however, entirely inadequate to meet the increasing demand, particularly since stocks were so reduced, and prices became much firmer. By the end of April they had climbed to 46 cents, and the exportable percentage was increased to 65. By steady progression the price reached $1.21 in July, then receded to $.90, only to return to $1.00, at which point it has stayed. These prices are significant only when it is considered that a price of $.36 yields the 15 per cent. profit that rubber growers say is a fair one.

While these high prices were ruling, the consumption of rubber, both in the United States and in foreign countries, continued to increase even more rapidly than had been anticipated at the beginning of the year. Consumption in the United States during the first nine months of 1925 was 300,000 tons, as compared to 335,000 tons in all of 1924. Prices of finished rubber goods were increased sharply, automobile tires in the United States being subject to four separate increases.

Complications. — Both American and British manufacturers have protested the continuation of the restrictive legislation, but the British Government has declined to have it altered. Representations by the American Ambassador in London resulted in minor concessions, of trifling importance. The scheme continued to operate normally, the exportable percentage being increased to 75 per cent. on August 1 and to 85 per cent. on November 1. It will apparently reach 95 per cent. on February 1 and 105 per cent. on May 1, 1926, after which the relationship of supply and demand will again have a chance to operate unhampered in determining the course of the market. The real rôle of restriction has been to decrease the supply while the demand has been increasing.

The serious consumer situation resulting from such restriction can be alleviated in the case of rubber by three factors: (1) conservation by the public, involving restricted purchasing of rubber products and more careful and complete use of those on hand; (2) the use of reclaimed rubber and of gums which may be employed as substitutes; and (3) the stimulation of the production of wild rubber throughout the world. These, of course, apply to the meeting of the immediate situation, and all of them are becoming effective. To bring the situation to an end, or to alleviate it some years hence, new planting is needed; action is also being taken along this line.

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By A. H. Onthank

Bureau of Foreign and Domestic Commerce, Department of Commerce

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DIVISION XVI
BANKING AND CURRENCY

THE NATIONAL CURRENCY

By Ray B. Westerfield
Professor at Yale University

A comparative statement of the composition and quantity of the currency, showing the changes that have occurred during the past year, is given in the table printed on page 438.

The following important changes in the currency during the year ending November 1, 1925, may be noted:

Gold Coin.—The total gold stock declined $111.6 millions, the gold held in the Treasury fell off $146.2 millions, and the gold in circulation contracted $6.3 millions; whereas the gold held by the federal reserve banks and federal reserve agents increased $40.7 millions. During the year the net excess of gold imports above gold exports was $165,000,000 in round numbers, and, the estimated gold production of the United States was $49,126,000.

It is evident, therefore, that these two factors were without effect in stopping the tendency of the per capita gold coin circulation to decline, it having fallen from $3.85 to $3.75 during the year, and from $8.22 in November, 1920. Any one conversant with custom in the Mountain and Pacific states before and since the late war cannot but have noted the declining frequency of the appearance of gold coins in recent years.

Gold Certificates.—The stock of gold certificates increased during the year $323.2 millions, or about 24 per cent., and the volume in circulation $163.0 millions, or about 18 per cent., and from $8.00 to $9.32 per capita. This change also conforms to the tendency since 1920, for in November, 1920, the circulation of gold certificates was $352.5 million, or $3.28 per capita, and in November, 1925, it was $1,067.9 millions total and $9.32 per capita. Obviously the tendency of the times is to use the representative paper money rather than the metallic coins in circulation; this tendency, while apparent before the war, especially with respect to silver dollars, was greatly accelerated by the impounding of gold in bank reserves during the war and the habituation of the people to the use of paper money.

Federal Reserve Bank Holdings.—Of the increase of $323.2 millions of stock of gold certificates $140.1 millions found their way to the vaults of the Federal Reserve banks and Federal Reserve agents, and $163.0 millions into circulation. The Federal Reserve banks have found it convenient to regulate their reserve ratio by holding on to the gold certificates that come to the bank and issuing against the gold a Federal Reserve note, or, vice versa, by redeeming a Federal Reserve note with gold; impounding gold certificates and issuing Federal Reserve notes raises the reserve ratio.

Silver Coins.—The volume of silver dollars increased $14.6 millions, but the actual circulation fell off about a half million, the dollars finding their way $11.5 millions into the Treasury and $3.5 millions into the federal reserve banks. Of the total stock of $523.7 millions only $54.8 millions are in circulation, and presumably a large portion of these lie in bank vaults much of the time. The

STATEMENT OF THE CURRENCY

November 1, 1924-1925

Kind of Money	Stock of Money (millions of dollars)		Money Held in U. S. Treasury (millions of dollars)	
	1924	1925	1924	1925
Gold coin and bullion	$4,553.6	$4,442.0	$3,845.1	$3,698.9
Gold certificates	1,362.4	1,685.6	......	......
Standard silver dollars	509.1	523.7	443.1	454.6
Silver certificates	423.0	443.2	......	......
Treasury notes of 1890	1.4	1.4	......	......
Subsidiary silver	278.3	286.6	8.2	7.2
United States notes	346.7	346.7	4.3	3.7
Federal Reserve notes	2,259.2	2,004.3	0.6	0.9
Federal Reserve bank notes	9.1	6.6	0.3	0.1
National bank notes	774.3	713.8	16.7	14.8
Total	$8,730.4	$8,323.7	$4,318.3	$4,180.3
Total, Nov. 1, 1923	$8,794.9		$3,940.6	
1922	8,438.7		3,660.9	
1921	8,117.8		3,245.8	
1920	8,326.3		2,406.8	

Kind of Money	Money Held by Federal Reserve Banks (millions of dollars)		Money in Circulation (millions of dollars)		Per Capita Circulation	
	1924	1925	1924	1925	1924	1925
Gold coin and bullion	$ 272.4	$ 313.1	$ 436.2	$ 429.9	$ 3.85	$ 3.75
Gold certificates	457.5	617.6	904.9	1,067.9	8.00	9.32
Standard silver dollars	10.8	14.3	55.2	54.8	.49	.48
Silver certificates	33.8	53.2	389.2	390.1	3.44	3.40
Treasury notes of 1890	....	....	1.4	1.4	.01	.01
Subsidiary silver	10.4	10.0	259.7	269.4	2.29	2.35
United States notes	36.5	36.4	305.8	306.6	2.70	2.68
Federal Reserve notes	474.5	296.7	1,784.0	1,706.6	15.77	14.90
Federal Reserve bank notes	0.3	0.1	8.7	6.3	.08	.05
National bank notes	23.0	31.2	734.6	667.7	6.49	5.83
Total	$1,319.2	$1,372.8	$4,879.7	$4,900.8	$43.12	$42.77
Total, Nov. 1, 1923	$1,305.0		$4,835.2		$43.27	
1922	1,219.0		4,570.3		41.44	
1921	1,391.0		4,610.9		42.44	
1920	987.9		5,628.4		52.36	

increase in the silver dollars is a result of the Pittman Act of 1918 which reduced many of the existing silver dollars to bullion for export to India and provided for the coinage of an equivalent amount after the war. The silver certificates increased $20.2 millions, but $19.4 millions of these went to the reserves of the federal reserve banks and somewhat less than one million into circulation.

Subsidiary Silver.—The subsidiary silver in circulation increased $9.7 millions, an amount equal to the average annual increase since 1922. The volume of small coins in circulation varies with fluctuations in business activity, and it has now recovered the size it had in the prosperous years 1919-1920. The figures are as follows:

1920	$261.6	millions
1921	259.2	"
1922	239.8	"
1923	254.8	"
1924	259.7	"
1925	269.4	"

Federal Reserve Notes.—One of the most unexpected changes is the decline in the volume of federal reserve notes, the total stock falling $254.9 millions, of which drop $77.4 millions were in circulation and $177.8 millions with the federal reserve banks and reserve agents. The year 1925 has been a prosperous year, and the federal reserve notes are supposed to be an elastic item in our currency, expanding in good times and contracting in poor. The explanation of the contrary behavior in 1925 is that member banks have had surplus funds and found little occasion to rediscount with the federal reserve banks and demand the issue of federal reserve notes. It has been shown that some of those issued were simply in exchange for gold certificates.

The process of redemption of the federal reserve bank notes has continued, $2.5 millions being redeemed during the year, leaving only $6.6 millions, of which $6.3 are still circulating. Lawful money has been deposited with the United States Treasurer for the retirement of all these notes outstanding.

National Bank Notes.—The national bank notes have declined $61.5 millions, and the circulation $66.9 millions. This item in our currency will merit special attention because the process of retirement has begun again. The Federal Reserve Act provided for their retirement, and the process of bond redemption, stopped in 1917, was resumed again in February, 1925. The stoppage was occasioned by war finance, and the high price of the 2 per cent. bonds after 1920 made it unprofitable for the federal reserve banks to convert the bonds and to retire the national bank notes. The high price of the bonds was due to (a) the conversion of $56 millions of the 2's in 1916-1917, and the redemption in 1918 of $64 millions of the 1908-1918 loan, decreasing the supply of bonds; (b) the increase in the number and capitalization of the national banks, creating a basis for more note issues; (c) the prevailingly low rates of interest, making note issues more profitable; and (d) the abundance of loan funds, inclining the banks to use their note issue privilege. The result was an increase of the national bank notes from $724 millions in January, 1921, to $778.0 millions in July, 1924. In February, 1925, the government began to redeem the $118.5 millions 4 per cent. loan of 1925, one of the types of bonds available as security for circulation, and in this manner forcing a reduction in the volume of bank notes.

Total Currency.—The total stock of currency declined $406.7 millions, of which $317.9 millions consisted of the issues of the banks. The per capita circulation fell from $43.12 to $42.77. Inasmuch as this decline occurred during a period of prosperous business, it is clear that the larger business at higher prices must have been conducted either by a larger use of deposit currency or by a more rapid rate of turnover of money. (See articles on Banking, Prices, Business Conditions).

THE GOLD STANDARD

By Frederick W. Gehle

Vice-President, Mechanics and Metals National Bank

Significance.—Gold is the world's recognized standard of value and medium of exchange; it has made its way without the designs of individuals because it has proved itself the one thing accepted in trade everywhere at all times. It is because of this that the developments of 1925, in the fields of banking and commerce, so often found their expression strictly in terms of gold. It is because of this, furthermore, that the gold supply of the United States added so much to the economic dominance of the nation during the year.

In Europe.—What was of outstanding importance in the financial developments of 1925 was the definite return of other nations, notably Germany and Great Britain, to the standard of gold currency from which they had departed on the outbreak of the war. This meant much not only to the economic stabilization of Europe but to the United States, for time after time, since the close of the war, there were heard proposals that the nations which were forced by the war strain to depart from the accepted financial standards should demonetize gold and adopt other standards.

Effect of World War on Europe.—The world was torn loose violently from its old moorings by the events which succeeded 1914; and no one up to 1925 could say positively just what moorings each individual nation would finally tie to when it came again to rest. Never in past history was there such a dislocation in banking reserves as during the period from which the world is now emerging. Great quantities of gold were poured here during the war and afterward, by nations in Europe which found metal payments the quickest and most effective means of securing here the food and other things they urgently needed. A consequence of the war and its aftermath was literally the draining of Europe of gold, so that the banking and currency affairs of the nations of that continent, with a few exceptions, were thrown into confusion. Another consequence was literally the flooding of the United States with metal, so that the nation was confronted with the serious problem of properly adjusting its currency and banking affairs to the power represented by the gold additions.

Effect in America.—Wherever it is lodged, gold seeks employment, and the additions to the American supply were a source of serious concern even before 1925. Under the American banking system gold is a basis of credit that permits large gold expansions by the banks when the gold is properly held. It was therefore the danger of extreme loan increases in the United States, beyond the legitimate needs of domestic business, that was one of the chief concerns of bankers and economists during 1925. Having greatly broadened the basis of the country's credit and cheapened money rates, it was feared that gold resources would result in extraordinary credit activities, leading to over-extension, inflation, rapid price a vances and ultimate business difficu ties.

Fortunately, much of the country gold is lodged with the Federal R serve Banks, and during the year, t keep the banking supplies withi bounds, an organized and intelligen plan was followed of getting gold ou of the banks and into general circula tion. In that way banking reserve were prevented from increasing to rapidly and considerable control wa maintained over the direction o credit. Contrary to many fears pre viously expressed, the credit struc ture was not menaced by the superabundance of gold within the country

Gold Balances.—Nevertheless, it still remains that there is more of the metal here than we need, and not enough in other countries whose currency is, or should be, determined by the gold standard. Efforts have been made to bring about a proper adjustment, and some success has attended these efforts, for gold was shipped in 1925 from New York to Europe. These exports assisted the restoration of both Germany and Great Britain to the gold currency standard. Without them, and without the additional pledge of gold credits, the return of those nations to gold would have been extremely difficult, if not impossible, in the past year.

Balance will be gradually restored in the international financial markets, and in time considerable gold should leave the United States. To be sure, the merchandise movements of 1925 did not make it easy for other nations to command shipments of our gold, for our export trade ran a billion dollars ahead of our imports, plunging foreign people deeper than ever into our debt. But extensive credit operations will do what foreign trade balances in a given period are incapable of doing, and for the American welfare as well as that of other nations, continuing efforts will be made to strengthen the gold position of those people abroad whose solvency will be assured if they are given a proper gold reserve. A return to the gold standard on the part of the world's great trading nations is a logical expectation; its consummation will mean much to the rehabilitation of the world.

The repeated insistence that lasting international prosperity cannot return until the exchanges are restored squarely upon a sound base is not merely an infatuation of gold, nor is it an old-fashioned faith with a worn out theory. It is a practical proposition, accepted wherever all its ramifications are understood. With two of the world's leading commercial nations in 1925 proclaiming their return to the gold standard, therefore, the metal is again, in its old sense, becoming the universal measure of value, medium of exchange and basis of credit.

BANKING

By W. E. Knox

President, Bowery Savings Bank, New York

Total bank resources in the United States in 1925 amounted to $61,700,000,000. The total capital and surplus was in excess of $7,000,000,000 and total deposits over $52,000,000,000.

Changes.—A number of evolutionary changes were apparent in banking developments during the year, an outstanding trend being continued modification of the sharp line of demarcation between definite classes of banks. This came about through the spread in the establishment of departments in banks devoted to activities formerly performed exclusively by other types of banks, such as savings and trust departments. Among the national banks, which at one time were occupied exclusively with commercial banking business, this tendency was especially noted. The same general tendency was also to be noted among state commercial banks.

In state banking laws there was a tendency toward greater uniformity, bringing this class of banks toward more common banking practice.

American Bankers' Association.—The dominant organization in American banking, the American Bankers' Association, in the fall of 1925 celebrated the completion of fifty years of existence. This organization comprises in its membership list 21,700 of the 29,900 banks of the country. Thus from the point of view of members, 72 per cent. of the banks of the country belong to this organization, while in respect to banking capital, about 90 per cent. of the total is represented in the membership of the organization.

In celebration of its fiftieth anniversary the Association established a $500,000 educational fund to provide for scholarships in economics and economic research in colleges and universities in every state in the Union. This is a new feature added to its educational activities. For many years it has conducted the American Institute of Banking for the purpose of training bank employees along scientific lines in the banking business and in 1925 over 30,000 students were enrolled in Institute courses.

The Association acts as a national clearing house of information and technical method for all classes of banking. For administrative purposes it is organized into divisions, sections, commissions and committees for giving specific attention to matters pertaining to each class of bank and to subjects of general interest to banking. The National Bank Division, the Savings Bank Division, the State Bank Division and the Trust Company Division devote their activities to the special interests of the types of banks indicated. The Clearing House Section is engaged in promoting the extension of clearing house organizations throughout the country and in aiding in the technical development of this method of bank coöperation by groups. The State Secretaries Section is engaged in promoting coöperation among the various state bankers' associations and the national body. The Protective Department of the Association, in conjunction with the State Secretaries Section, has been particularly active in recent years in waging a campaign of prevention and protection in respect to the rising wave of crime against banks.

In addition to these various uni there are a number of commissio and committees dealing in detail wi numerous banking questions and r quirements.

THE NATIONAL BANKING SYSTEM

By Gurden Edwards
American Bankers' Association

Due mainly to consolidations and conversions the number of National banks in the United States lessened during the last year from 8115 to 8016. The shrinkage in number, however, did not affect adversely the aggregate assets. On the contrary, National bank resources were higher at the close of business December 31, 1924, than at any other time in the history of the country. The amounted to $24,381,281,000. Tl last report, April 6, 1925, showed slight contraction of resources though they then totalled $23,832 463,000, an increase of $1,769,575,00 since March 31, 1924. The followin statement of condition of the entir National Bank System shows som interesting comparisons:

CONDITION OF THE NATIONAL BANKS
(In thousands of dollars)

Resources	Mar. 31, 1924 8,115 banks	Apr. 6, 1925 8,016 banks	Gain or Loss
Loans and discounts (including rediscounts)	$11,952,287	$12,468,836	+$ 515,549
Overdrafts	10,815	11,410	+ 595
Customers' liability account of acceptances	202,572	240,962	+ 38,390
United States Government securities owned	2,494,313	2,614,185	+ 120,502
Other bonds, stocks, securities, etc.	2,511,637	3,139,255	+ 627,618
Banking house, furniture, and fixtures	525,335	564,103	+ 38,768
Other real estate owned	100,098	112,481	+ 12,383
Lawful reserve with Federal Reserve banks	1,160,766	1,273,274	+ 112,508
Items with Federal Reserve banks in process of collection	379,307	411,539	+ 32,232
Cash in vault	342,969	361,671	+ 19,702
Amount due from banks	1,222,190	1,587,704	+ 365,514
Exchanges for clearing house	842,719	665,288	— 177,431
Checks and other cash items	123,503	122,249	— 1,254
Redemption fund and due from U. S. Treasurer	37,167	33,120	— 4,047
Other assets	157,210	226,386	+ 69,176
	$22,062.888	$23,832,463	+$1,769,575
Liabilities			
Capital stock paid in	$ 1,335,572	$ 1,361,444	+$ 25,872
Surplus fund	1,073,363	1,106,544	+ 33,181
Undivided profits, less expenses and taxes paid	507,905	490,457	— 17,448
Reserved for taxes, interest, etc., accrued	......	60,224	+ 60,224
National bank notes outstanding	726,483	649,447	+ 77,036
Total deposits	17,598,696	19,382,947	+ 1,784,251
United States government securities borrowed	35,684	21,747	— 13,937
Bonds and securities (other than United States) borrowed	2,532	3,821	+ 1,289
Bills payable (including all obligations representing borrowed money other than rediscounts)	238,888	219,198	— 19,690
Notes and bills rediscounted (including acceptances of other banks and foreign bills of exchange or drafts sold with indorsement)	271,645	226,597	— 45,048
Letters of credit and travelers' checks outstanding	6,225	6,537	+ 312
Acceptances executed for customers and to furnish dollar exchange less those purchased or discounted	193,240	232,761	+ 39,521
Acceptances executed by other banks	25,455	29,502	+ 4,047
Liabilities other than those stated above	47,200	41,237	— 5,963
	$22,062,888	$23,832,463	+ $1,769,575

The gain of nearly two billion dollars in deposits, as shown in the statement above, was accompanied by an increase of only half a billion dollars in loans and discounts. The percentage of loans and discounts to total deposits on April 6, 1925, was 64.33 compared with 67.92 a year earlier. These figures show unmistakably a wider practice of the habits of thrift and saving and that borrowing for the conduct of business enterprises has not expanded in the same ratio as resources have increased.

Of the total liabilities for money borrowed amounting to $445,795,000, April 6, 1925, $160,143,000 represented bills payable with Federal Reserve banks and $110,334,000, notes and bills rediscounted with these banks. The reduction in these combined liabilities in the year was $64,738,000.

Notwithstanding the smaller number of National banks their capital was increased during the year from $1,335,572,000 to $1,361,444,000, while surplus funds and undivided profits advanced from $1,581,268,000 to $1,597,001,000.

United States Government securities amounting to $2,614,185,000 show an increase in the year of $119,872,000 and other bonds and securities amounting to $3,139,255,000, an increase of $627,618,000.

The volume of National bank currency was reduced to $649,447,000 by reason of the retirement of $77,036,000 of United States Government bonds which theretofore were held as security for that amount of such notes. No other bonds were made available as a pledge for National bank notes and, therefore, the volume must remain permanently reduced unless Congress invests some additional bonds with the circulation privilege.

National Bank Deposits.—An itemization showing the sources from which deposits liabilities accrue is found in the following table:

TABLE OF DEPOSITS

(In thousands of dollars)

	Mar. 31, 1924	Apr. 6, 1925
Due to Federal Reserve banks	$ 25,328	$ 29,323
Amount due to National banks	886,435	1,147,628
Amount due to other banks, bankers, and trust companies	1,653,347	1,839,935
Certified checks outstanding	187,704	197,508
Cashier's checks outstanding	261,785	204,447
Demand deposits	9,292,127	9,923,243
Time deposits (including postal savings)	5,108,970	5,875,211
United States deposits	183,000	255,652
Total deposits	$17,598,696	$19,382,947

Reserves.—National banks furnish 80 per cent. of the number of bank members of the Federal Reserve System, and their resources are 65 per

TABLE OF RESERVES

(In thousands of dollars. April 6, 1925)

	Reserves Required with Reserve Banks	Reserves Carried with Reserve Banks	Excess Reserves
New England States	$ 89,084	$ 90,263	$ 1,179
Eastern States	568,512	553,634	— 14,878
Southern States	146,366	153,914	7,548
Middle Western States	298,065	312,478	14,413
Western States	75,709	79,169	3,460
Pacific States	82,037	83,816	1,779
Alaska	393	696	303
The Territory of Hawaii	581	1,526	945
	$1,260,747	$1,275,496	$14,749

cent. of the total resources of all members of the Reserve System. The reserves required and the reserves carried with the Federal Reserve Banks aggregate a tremendous sum and they are shown geographically in the table on page 443.

The entire growth of the Natio Banking System has been steady a sound, and the progress which been made during the last year in cates that expansion has not be effected at the cost of either co dence or stability.

STATE BANKS

By Gurden Edwards

American Bankers' Association

Origin.—In American Banking, state banks have always loomed large. They were the pioneers in breaking ground in the development of American banking experience—an experience varied and somewhat checkered, but invaluable in serving as chart and compass in the development of banking principles and methods.

The birth of state banks was coincident with that of the Nation. It was a state bank, the Bank of Pennsylvania, chartered during the Revolution, that financed the infant government and initiated the American system of banking.

Parallel Systems.—After the expiration of the United States Bank in 1836, state banks constituted the only recognized banking system for over a quarter of a century or until the enactment of the National Bank Act of 1863. Since then there have evolved two great banking systems, ranking among the greatest in the world, the State system with 21,350 banking institutions and $34,548,771,000 resources; and the National system with 8043 banks and $24,368,991,000 resources, both rendering indispensable service in their respective fields and providing a system balanced between state and National co trol that operates in the public i terest; moreover, the Federal Reser System has served to bring about a excellent coördination of the faciliti of the two systems—affording us t most sound and scientific bankir facilities ever devised.

State banks, as their name implie are under the jurisdiction of the se eral states—each state establishin its own banking act under whic banks are chartered and supervise by a department of banking under th direction of an officer usually designated as "bank commissioner" o "superintendent of banks."

Unifying Influences.—Among th forces which help unify banking are the American Bankers' Association the State Bank Division of th A. B. A., which is the national association of state banks; and stat bankers' associations in each of th several states. Moreover, the Federa Reserve System as a bank of bank serves to federate all banks and trus companies into a harmonious system The 1544 state banks which are members of the Federal Reserve Systen have total resources of $14,617,876,000. In other words, while stat banks constitute less than one-fift

TABLE OF STATE CHARTERED BANKS

(Years 1919-1924)

	No. of Institutions	Capital	Surplus	Deposits	Loans and Discounts	Resources
1919	21,028	$1,307,000,000	$1,332,000,000	$21,632,000,000	$12,257,000,000	$25,966,000,00
1920	21,923	1,595,243,703	1,450,494,206	23,950,838,611	15,334,616,394	29,191,455,64
1921	22,705	1,734,909,385	1,533,327,012	23,780,750,818	15,449,134,595	29,412,657,02
1922	22,302	1,794,110,615	1,587,458,465	23,510,877,185	14,108,585,847	28,808,553,35
1923	22,084	1,855,237,769	1,450,746,035	27,013,525,116	15,547,076,777	32,081,329,23
1924	21,350	1,915,334,597	1,547,908,798	28,402,756,641	16,264,679,542	34,548,771,00

the membership of the Federal Reserve System, the state bank member resources are over one-third of the total member-bank resources in the system.

Since the issuance of the 1919 *American Year Book*, state banks have increased in number from 21,028 to 21,350, and in resources from $25,966,000,000 to $34,548,771,000, or an increase in resources of 33 per cent. in five years, as indicated in the tabulated report of state chartered banks, herewith given.

TRUST COMPANIES OF THE UNITED STATES

By Gurden Edwards
American Bankers' Association

The phenomenal growth of trust companies of the United States is sufficient proof that they are serving the public in a satisfactory manner. Ten years ago the banking resources of 1,777 trust companies was reported as being $6,300,000,000, while today, 2,600 companies have total resources of $16,000,000,000.

The field covered by the trust company touches almost every phase of human activity. In addition to their banking resources, these institutions hold for safekeeping or administration, as executor, trustee, administrator, guardian, or in other capacities, property variously estimated as being between thirty and sixty billions of dollars. This does not include their many billions of dollars of corporate trusts.

Unifying Methods.—To aid in the conduct and development of this vast business, the Trust Company Division of the American Bankers Association is constantly employed.

In conjunction with the Legal Counsel of the Association, bills introduced in Congress or the several State Legislatures, of interest to trust companies, are carefully studied with a view to assisting in their ultimate passage or defeat.

A special committee on that form of taxation which makes a levy against the transmission of an estate or the right to receive an inheritance is actively employed in solving this problem now troubling a large portion of our citizens.

For the past five years, special work has been done in connection with urging men and women everywhere to put their houses in order through the preparation of properly drawn wills, so that their estates will be conserved and protected rather than dissipated and destroyed.

A close affiliation has been formed with the members of the legal profession, and the trust companies of the country have been urged carefully to avoid the practice of law in the administration of estates and trusts.

Unification or standardization of fees for trust company service has been brought about in many of the states and is under way in others, with a view to giving the public the highest form of service at the lowest possible cost consistent with safety and responsibility of management.

Insurance Trusts.—A great stimulus has been given by this method during the past few years to the formation of a form of trust whereby life insurance policies may be trusteed for the benefit of one's family or other dependents. The segregation of these funds, apart from the estate, is giving a feeling of security and satisfaction to the creator of the trust, as insurance policies are usually paid promptly and in full and are considered one of the highest forms of liquid assets found in the inventories of decedent's estates. In the development of this work, a close affiliation is being made with all insurance companies and underwriters throughout the United States.

The maintenance of the Federal Reserve System in its fullest vigor is being actively promoted through the securing of new members for the System.

FEDERAL RESERVE BANKS

By Randolph W. Burgess

Assistant Federal Agent, Federal Reserve Bank, New York

Gold to Bank of England.—Perhaps the most interesting incident in the operations of the Federal Reserve Banks during 1925 was the completion of an arrangement by which the Federal Reserve Bank of New York with the participation of the other Reserve Banks would place at the disposal of the Bank of England for a period of two years $200,000,000 of gold if desired, as an aid to the reestablishment of a free gold market in London. The exact nature of the transaction was described in the Federal Reserve Bulletin for June, 1925, in the following language:

> Under its arrangement with the Bank of England the Federal Reserve Bank of New York undertakes to sell gold on credit to the Bank of England from time to time during the next two years, but not to exceed $200,000,000 outstanding at any one time. The credit is to bear interest to the extent that it is actually used at a rate of 1 per cent. above the New York reserve bank's discount rate, with a minimum of 4 per cent. and a maximum of 6 per cent., or, if the Federal reserve discount rate exceeds 6 per cent., then at the discount rate of the bank. . . . Upon the purchase of gold the Bank of England will place on its books to the credit of the Federal Reserve Bank of New York an equivalent deposit in pounds sterling. This deposit may be used from time to time by arrangement with the Bank of England in the purchase of eligible sterling commercial bills which shall be guaranteed by the Bank of England, and in that case discount earned on the bills will be applied to the payment of interest.
>
> If occasion arises for the use of this credit, support can be given to sterling exchange either through the purchase of sterling bills in New York or abroad, or gold can be shipped to other countries on British account. Thus the Bank of England could meet a foreign demand for gold without reducing its own reserves, or it could replenish its reserves by withdrawing gold from this country or by earmarking it in New York. The form in which the credit would be used would depend upon the circumstances at the time.

Up to the present time the Bank of England has made no use of this credit but its availability in addition to the credits established by the British Government for the purpose has been a substantial factor in the maintenance of gold payments.

Other Gold Loans.—In addition to this aid extended to the Bank of England the Federal Reserve Bank New York, with the participation other Federal Reserve Banks, has du ing the year made small loans to t Bank Polski secured by gold and h also offered to buy prime endors commercial bills from the Nation Bank of Belgium, if desired.

The domestic operations of t Federal Reserve Banks reflected du ing the year the high rate of bu ness and financial activity whi characterized the year, together wi net gold exports of about $125,00 000. Total extensions of credit the Reserve Banks, represented their total holdings of bills and s curities, increased during the year about 200 million dollars, and in t latter part of the year totaled abou $1,300,000,000. An interesting chang in the composition of these bills an securities consisted of a reduction about 200 million in government s curities held by the Reserve Bank (which represent their voluntary pu chases in the open market) and a increase of about 400 million dolla in direct loans to member banks (i which member banks take the initia tive). These sales of government s curities by the Reserve Banks aggre gating about 200 million dollars wer made during the first three months the year, and as usual resulted i corresponding additional borrowing by member banks from the Reserv Banks.

Discount Rates.—In keeping wit gradually rising open market mone rates during the year the followin increases were made in the discoun rates of the Reserve Banks:

	Date	Change
New York ...	February 27	From 3 to 3
Boston	November 10	" 3½ to 4
Cleveland	" 17	" 3½ to 4
Philadelphia ..	" 20	" 3½ to 4
San Francisco.	" 23	" 3½ to 4

Volume of Operations. — Thes changes resulted in a uniform level

4 per cent. for the discount rates of all the Reserve Banks, except the New York Bank which remained at 3½.

The operations of the Reserve Banks continued to increase in volume during the year. There was a steady growth in the volume of checks collected for member banks and at the end of the year these were running in the neighborhood of 2,600,000 checks a day, with a total value of over $900,000,000. There were similar increases in the amounts of non-cash items collected, securities held in safekeeping for member banks, the amount of funds transferred by wire to and from all parts of the country, coupons collected, etc. The banks continued to receive each day about 30 million dollars of currency and to pay out a like amount of sorted and new currency. At the close of the year the 12 Federal Reserve Banks were all occupying buildings of their own and adapted to their type of operations. They were operating 23 branches as well, and their employees numbered about 10,000. There were 9,500 member banks holding about two-thirds of the banking resources of the country.

Personnel.—There was no change during the year in the personnel of the Federal Reserve Board. Mr. D. R. Crissinger was redesignated by the president to be governor of the Board for the year ending May 1, 1926. In the individual Reserve Banks the principal changes were: D. C. Wills, chairman of the Cleveland bank who had served since the inauguration of the system in 1914, died on October 22. No successor has yet been appointed. B. A. McKinney resigned as Governor of the Federal Reserve Bank of Dallas and was succeeded by Lynn P. Talley, previously chairman of the Board. Mr. Talley was succeeded as chairman by Col. C. C. Walsh.

FARM LOAN BANKS

By Robert A. Cooper
Farm Loan Commissioner, Treasury Department

Organization. — Under the Farm Loan Act, approved July 17, 1916, Congress provided for twelve Federal Land Banks, and for other institutions not limited in number called Joint Stock Land Banks. Supervision was vested in a Farm Loan Board of six members, plus the Secretary of the Treasury. By an amendment of March 4, 1923, twelve Federal Intermediate Credit Banks were created.

The capital account of the system stood, October 31, 1925, at $53,090,485, of which only $1,331,930 was owned by the United States, while borrowing farmers furnished $51,758,555. In addition, there were reserves and surplus equalling $13,241,155.99. The total assets were $1,067,705,789.23. Net earnings from the beginning of business to the end of October were $33,829,161.82, out of which the Banks paid dividends amounting to $13,208,999.90. It is the established policy of the System to charge off real estate acquired by foreclosure, therefore $6,066,585.13 was used for this purpose, and $1,318,524.79 was set aside as a reserve for delinquent installments. There remain undistributed surplus and profit accounts of $13,235,052.

Farm Loan Associations.—Since organization 373,719 farmers have been served through 4,656 National Farm Loan Associations, which are the subsidiary organizations through which the Federal Land Banks conduct their business in the various counties of their respective districts, in a total amount of $1,148,738,648.

Joint Stock Land Banks.—Ten or more persons may organize a Joint Stock Land Bank by subscribing and paying in a capital stock of not less than $250,000. At this time fifty-six banks of this type are operating in practically every State in the Union. It will be noted that while these corporations are privately owned, they otherwise come under Government supervision. Their paid-in capital, October 31, 1925, was $41,044,918.41. Surplus, reserve and other net worth accounts amounted to $9,819,067.05 more. The total assets of these banks were $587,802,826.78. From organization to date they lent $602,885,963 to 79,923 borrowers.

Federal Intermediate Credit Banks.—All of the capital stock of this group is to be subscribed by the Secretary of the Treasury on behalf of the United States, and is to be paid for and held by the Government. Each of the twelve banks, whose domicile and officers are the same as those of the Federal Land Banks, is capitalized at $5,000,000, of which $2,000,000, or $24,000,000 altogether, have been paid in. These banks were devised to provide a credit to farmers of from six months to three years, intermediate between the short term credit of commercial banks and the long term farm mortgage. Direct loans are authorized to coöperative marketing associations, secured by warehouse receipts on staple agricultural products, and rediscounts, representing agricultural transactions, purchased from banks or qualified and capitalized agricultural credit corporations. In the period these Banks have functioned, they made direct loans in the sum of $191,692,574.84, and carried rediscounts in the aggregate amount of $83,719,281.88. As required in the Act, 50 per cent. of the net earnings of the Intermediate Credit Banks, at the end of each calendar year, must be paid into the Treasury as a franchise tax. On December 31, 1924, the tax so paid was $528,313.30. It is estimated that 54,029 farmers have been directly served through the rediscount of their individual notes, and 757,889 indirectly served as members of coöperative marketing associations.

Interest.—No loan on a farm mortgage shall be made under this Act at a rate exceeding 6 per cent., although, as a matter of fact, it has ranged lower, and at present, in some districts, is 5 per cent. In the Intermediate Credit Banks, the interest charge is fixed by the Farm Loan Board, based upon the cost of debentures sold, and at this date it is 5 per cent., both on rediscounts and direct loans.

Funds.—In all three types of bank funds for loaning are procured fro the sale of bonds, the security f which is the mortgages taken by th Banks on land, and the paper repr senting advances on staple agricu tural products. There has been n difficulty in finding a ready sale f these debentures.

Purpose.—The Land Banks cam into existence in answer to a deman that farmers, through a recognize and standard form of security, shoul have access to the money markets o the country on an equality with in dustry, to enable them to procur funds at a reasonable cost. In addi tion to gaining lower rates of interest three other outstanding features o this System may be emphasized namely, abolition of commissio charges, long term contracts, thirty four and one-half years being the rule and amortization of the debt, in con sequence of which renewals are un necessary and ultimate repayment i achieved according to a scientific plan. The Intermediate Credit Banks are not competitors of commercia banks, but coöperators with them in the service they render, providing reservoirs of credit which may be drawn upon in times of stringency and stress.

Causes of Success.—The Federal Farm Loan System has been successful during the years it has operated because, in the first place, it was soundly set up, and, in the second place, it has always followed a conservative policy. Insistence has been laid on the fact that every loan must be adequately secured. There must never be any question of the ability of any bank promptly to meet its obligations. At all times each bank must have 100 per cent. of good mortgages, plus the capital and legal reserve required by the Act, unimpaired, to support all of its outstanding bonds. Moreover, each Federal Land Bank is responsible for repayment of outstanding obligations, and interest thereon, of every other Federal Land Bank, and the same principle holds as to the Intermediate Credit Banks.

The purpose of the Farm Loan Act

primarily is to promote a more prosperous agriculture, and while this demands an adequate supply of credit, it implies also the development of a diversified, well-balanced production, with a suitable scheme of orderly marketing.

Thus the chief thought and purpose of the Farm Loan System is to use such care and discretion in granting loans as will insure the continuance of loans at a low rate of interest, and at the same time exert an instructive influence for the wide spread of safe and successful farming throughout the country.

SAVINGS BANKS

By Gurden Edwards

American Bankers' Association

The Savings bank business in the United States is conducted by mutual savings banks, stock savings banks and the savings departments of state banks, national banks and trust companies. By reason of the fact that Mutual Savings banks have no capital stock, that the National banks in no case segregate capital and surplus for departmental banking, and that the State banks and Trust Companies are required in but a few states to segregate capital and surplus for departmental banking, it is impossible to list the capital and surplus allotted to the savings business.

SUMMARY OF SAVINGS—DEPOSITS AND DEPOSITORS

1912–1924

(Including time certificates and postal savings)

(In thousands of dollars)

YEAR	Mutual Savings	State Banks	Trust Companies	Private Banks	National Banks
1912	$3,595,026	$1,913,962	$1,306,780	$73,521	$1,535,986
1913	3,811,713	2,066,789	1,269,459	67,307	1,368,803
1914	3,910,499	1,976,398	1,336,535	51,266	1,453,838
1915	3,915,017	2,096,590	1,410,107	48,323	1,321,486
1916	4,033,617	2,388,160	1,296,537	43,962	1,715,792
1917	4,249,100	3,281,542	1,192,619	47,817	2,172,666
1918	4,370,361	3,607,084	1,223,702	52,155	2,336,071
1919	4,651,400	3,883,002	1,100,219	45,532	2,776,307
1920	4,966,049	4,969,528	1,218,804	54,997	3,462,800
1921	5,582,812	5,636,685	1,683,954	85,653	3,629,491
1922	5,688,644	6,096,320	1,400,239	71,995	4,074,281
1923	6,273,151	6,503,455	2,033,311	71,699	4,686,337
1924	6,693,247	6,786,712	2,169,178	37,365	5,158,006

Classification of Deposits—All Banks

(In thousands of dollars)

YEAR	Total Savings Deposits	Total Individual Deposits	Rel. Sav. to Total Ind. Dep.	Per Capita Sav. Dep.	Per Capita Total Ind. Dep.	Total Number Sav. Dep.
1912	$ 8,425,275	$16,727,733	.50	$89	$175	12,584,316
1913	8,584,071	18,597,187	.46	89	192	14,295,931
1914	8,728,536	18,914,339	.46	89	193	11,385,734
1915	8,791,523	18,644,900	.47	88	187	16,084,587
1916	9,478,068	21,990,868	.43	94	218	10,374,770
1917	11,115,790	22,774,085	.49	107	222	10,631,586
1918	11,589,373	24,450,273	.47	111	236	10,637,750
1919	12,456,460	28,468,144	.44	118	271	18,176,251
1920	14,672,178	32,647,256	.45	137	306	20,915,612
1921	16,618,595	35,299,933	.47	157	327	26,573,870
1922	17,331,479	36,964,032	.47	158	338	30,250,520
1923	19,567,953	40,930,156	.48	176	369	35,425,317
1924	20,844,508	41,101,814	.51	186	367	38,867,994

The advent of savings departments in State banks, National banks and Trust Companies during a ten-year period has caused a decrease in t number of banks doing strictly sa ings business.

SUMMARY OF SCHOOL SAVINGS

SCHOOL YEAR OF	Number of Schools	Number Enrolled Pupils	Number Participating	Collections	Bank Balanc as of June 30, 192
1923–1924	9,080	3,095,012	2,236,326	$14,991,535.40	$20,435,144.
1922–1923	6,868	3,061,053	1,907,851	10,631,838.69	11,807,085.
1921–1922	4,785	2,241,706	1,295,607	5,775,122.32	6,479,286.
1920–1921	3,316	1,829,475	802,906	4,158,050.15	5,185,280.
1919–1920	2,736	1,015,653	462,651	2,800,301.18	4,200,872.

POSTAL SAVINGS

BY WILLIAM E. BUFFINGTON

DIRECTOR, POSTAL SAVINGS DIVISION, U. S. POST-OFFICE DEPARTMENT

Postal Deposits.—The total of the outstanding certificates issued against sums on deposit with the Postal Savings System decreased slightly during the fiscal year. It stood at $132,173,211 on June 30, 1925, as against $132,814,135 on June 30, 1924, having declined $640,924. The number of depositors diminished somewhat more sharply, to 402,325, showing a loss of 10,259, or about 2½ per cent., while the average amount to the credit of each depositor rose $6.61, to $328.52. Extensive transfer of accounts from one post office to another took place; 4,102 accounts thus transferred aggregated $2,292,103, or $236,879 more than in the year preceding. The accrued interest on certificates in the hands of depositors increased slightly to $3,696,455.68.

Proposed Expansion.—Under the act of 1910 creating the Postal Savings System, the total amount that an individual may have on deposit is limited to $2,500, and the rate of interest is set at 2 per cent. Reports from postmasters indicated that many depositors had reached the limit and were prevented by it from making greater use of the system. The Report of the Postmaster General advocated the removal of the existing deposit limit and a slight increase in the rate of interest paid, as means to extend the utilization of the Postal Savings Service. He also propose as a measure likely to aid towar this end, that authority be conferre to receive deposits from officials c fraternal and like organizations.

Postal Savings Bonds.—The la provides that a depositor may ex change certificates of deposit on th first of January or July of any yea for postal savings bonds bearing in terest at the higher rate of 2½ pe cent.; but comparatively few deposi tors applied in 1925 to convert thei deposits into bonds. During the fisca year $331,140 in such bonds wa sought by 331 depositors. There wer outstanding on June 30, $12,234,22 of postal savings bonds, but of thi total $9,752,940 had been repurchase from holders by the Government, an were carried as investments amon the resources of the Postal Saving System. Bonds in the hands of th public totaled $2,481,280.

Totals.—The resources of the Sys tem were mainly in the form of de posits bearing interest at 2½ pe cent., made by postmasters wit qualified local banks, and represent ing money received from depositors i return for postal saving certificate These bank deposits totaled $97,759, 025.37. The System held in additio to the repurchased postal saving bonds, $26,676,750 par value of Lib erty bonds.

CONSOLIDATION OF BANKS

By Gurden Edwards

American Bankers' Association

An outstanding development in American banking in recent years has been that of consolidation. Statistics published in 1925 in regard to this movement in New York City alone showed that since the World War period down through 1924, forty-two important bank mergers were consummated there involving seventy-six individual institutions with over $645,000,000 in aggregate capital funds and $4,295,000,000 in deposits. In Chicago and other large financial centers in the country mergers, consolidations and absorptions involving large interests have also taken place during the period since the war. During 1925 this movement towards consolidation and absorption continued at a high rate.

In addition to the general factors of business expansion bringing about bank consolidations two other chief specific motives for such operations may be mentioned. One is the authorization granted national banks to conduct a trust business and in order to take advantage of this privilege many banks of this class that had previously conducted only straight commercial bank operations purchased established trust companies with their trained expert personnel and accumulated business and experience, enabling them to develop rapidly their own operations in this highly specialized field of banking. The second major cause, overshadowing other factors particularly in New York, was the growth of the branch banking movement in that city. In many cases large banks absorbed other banks established in various neighborhood banking work in order to gain footholds in different parts of the city for themselves. This was a motive leading to consolidations in other places enabling established banks to acquire other established banks as branches.

BRANCH BANKING

By Thomas B. Paton

General Counsel, American Bankers' Association

A summary of state banking statutes covering branch banking within the states, with supplementary information in the absence of statutory provisions, compiled in the office of the General Counsel of the American Bankers Association in April, 1924, shows the following:

Authorizations.—Statewide branch banking is expressly permitted by statute in eight states: Arizona, California, Delaware, Georgia, North Carolina, South Carolina, Rhode Island and Virginia.

Branch banking is permitted as to locality in five states: Louisiana, Maine, Massachusetts, New York and Ohio.

Branches are permitted without express statutory authority in the states of Maryland and Tennessee.

The right to operate branches is implied, but no branches exist in Wyoming.

Branch offices or agencies are permitted, but not "branch banks" in four states: Kentucky, Michigan, Mississippi (powers not expressly limited), and Pennsylvania.

Prohibitions.—In the following sixteen states the statutes expressly prohibit branch banking: Alabama, Arkansas, Colorado, Connecticut, Florida, Idaho, Indiana, Minnesota, Missouri, Nevada, New Mexico, Oregon, Texas, Utah, Washington and Wisconsin.

Without express statutory prohibition, branches are not permitted in the following eleven states: Illinois, Iowa, Kansas, Montana, Nebraska, New Jersey, North Dakota, Oklahoma, South Dakota, Vermont and West Virginia.

In the state of New Hampshire the status of branch banking is uncertain. Information from several sources indicates that branches are not permitted but the bank directories include one branch recently formed.

Prohibitory statutes generally except existing branches. Roughly speaking, branch banking is not permitted in two-thirds of the states.

Recent Legislation.—During 1925 New Jersey has passed a law authorizing banks and trust companies other than savings banks to establish branch offices or agencies in the same town, township, borough, or village and a separate law provides for branches of savings banks within the corporate limits of the municipality on the approval of the commissioner of banking and insurance, provided the bank has a surplus of not less than five per cent. of deposits and in addition $50,000 surplus for ea branch office.

In Tennessee where branches ha heretofore been permitted without e press statutory authority not limit to the same city or town, the legi lature in 1925 has enacted a la prohibiting branches of banks in an place whatsoever other than th county in which the bank does it business. This law, however, is mad applicable to branches that no maintain branches outside the count

The state of Idaho, wherein branc banking has heretofore been prohibited, has passed a further law thi year which provides that no ban shall maintain any branch bank, receive deposits or pay checks excep over the counter of and in its ow banking house with a proviso tha nothing in the law shall prohibit ordinary clearing house transactions between banks.

FOREIGN EXCHANGE

By Harold R. Bayley

Foreign Exchange Broker, New York

British Gold Standard.—The outstanding feature in Foreign Exchange 1925 was the return of Great Britain to a free gold basis, though the year witnessed many events of major importance. The general tendency of quotations reflected restored confidence and resumption of normal activities. Such improvement was due mainly to determined efforts toward restoring of closer balance between governmental expenditures and receipts and increased output of labor. Our purchase of securities of divers class and large loans to various states and industrial institutions gave great impetus to the movement.

The rapid adjustment to higher values and increasing restoration of parities brought to the fore the subject of resumption of gold payments and efforts on the part of forward looking statesmen to this end became the subject of heated debate. Broadly increasing improvement in general conditions both here and abroad, enabling us on the one hand to offer large financial aid to Europe and enabling Europe to restore her position in many respects to normalcy, eventually brought England to the goal of her endeavor and actual resumption of gold payments was announced April 28.

Sterling entered the year at 4.74⅞ for cable transfer with a definite upward trend. England, by courageous acceptance of burdensome taxes had balanced her budget and funded her war debt to us, thus inspiring world wide confidence in her ability soon to declare for a gold basis. Under the impetus of easy money here and higher rates at London vast balances were established there and large amounts placed in investments, the rate for the Pound mounted to 4.84½ in April when announcement of resumption of gold payments was made. In May the rate advanced to 4.86⅜ and large profit taking and drawing down of balances with signs of stiffening of interest rates here retarded further advance. An advance of the Bank of England rate from 4 per cent. to 5 per cent. in May held values at about 4.86 but increasing demands on credit here with huge requirements for Stock marketing purposes reflected their influence in bearing the quotion in October to 4.84 and making necessary the shipment to us of large sums of gold. Our purchases of remittances, in payment for the gold sent us, rapidly restored the rate to 4.84⅞ making further shipment of the precious metal unprofitable.

Holland.—Holland suffering fewer post-war difficulties saw the Guilder at .4054 at the opening of the year. From the beginning, fluctuations were never of a startling nature dropping no lower than .3984 in March, rising again in April to .4012 at which time the return to a basis of gold payment was announced, the declaration having been made simultaneously with that of the English Bank. Since April quotations have varied little, a market of great stability having carried through the balance of the year.

Scandinavia.—Sweden having long since effected a limited gold basis has stimulated little interest. Operations in exchange have been of limited nature and devoid of speculative flavor. The rate at the beginning of the year was .2697, just above gold parity and was steadily maintained with slight variation until April when a low of .2674 was recorded, in May a low of .2673 was followed by a rise in July to .2692. Quotations were only slightly changed through August and September. A slump followed in October to .2676 at which it remained throughout November.

Denmark and Norway presented a joint picture of lively interest. Conditions throughout were generally similar and the story of either is applicable to both. Norway at .1513 and Denmark at .1768 marked the opening of the year. With a tendency to rally occasionally and displaying marked nervousness, the quotation changed little through January and February. In March a strong tendency asserted itself and speculative interest was greatly roused. Exporters in both countries now began to sell their balances in New York and London which they had permitted to accumulate unaware of the fact they had grown to such unwieldly proportions. The machinery of foreign exchange was taxed to its utmost, the dollars resting here were suddenly wanted at home. Such demand, now become general and insistent, carried the rates to .1587 in March for Norway and .1836 for Denmark; April, .1653 Norway and .1872 Denmark. Soon talk of early return to a basis of gold payments became rife and return to par was expected and hoped for by eager speculators. Meanwhile the exporters at Oslo and Copenhagen were hard hit by the rise in the Krone at New York and (consequent) drop in the Dollar at home, and their State Banks now endeavored to stem the tide by buying Dollars at home, but the speculative fever carried on and June saw the rates at .1790 for Norway and .2019 for Denmark; the respective quotations for July touched .1885 and .2405 but profit taking carried them back to .1803 and .2200 at the close of the month. August witnessed a further advance to .2095 and .2501 and September .2242 and .2535; efforts to prevent further rise and stabilize the rates were now become effective. The too rapid advance had already caused much concern and a marked reaction in industry.

France.—Meanwhile France, torn between the forces of political exigency and personal as opposed to National interest, has floundered in a mire of financial and political blundering. Unlike other nations, politics has been one of the most important influences operating in its effect on Exchange. Shifting policies, changing cabinets, evasion of primary responsibilities regarding taxation and acknowledgment of external obligations has shattered confidence and resulted in sporadic flights from the Franc. Obligations of Treasury have pressed heavily on the Bank; maturing loans, due to unwillingness of public to reinvest, have been met only by recourse to issue of bank notes in increasing volume, making necessary the extension of legal limit of issue to unprecedented figures. The effect of such cumulative influences has left the Franc in a most deplorable condition and constituting the outstanding weak spot in the whole international group. The Franc opened the year at .0544—this rate also marking the high.

Credits effected in United States formed the only prop to the rate and proved effective at times in restoring some semblance of stability. Large buying of Dollars and Sterling reflecting the endeavor to find safe refuge from repeated threats of capital levies proved too heavy a strain and the Franc with occasional rallies slumped to .0376 in November.

Belgium at the beginning of the year was under the influence of the French Franc and suffered the resultant ills of France and her policies, or lack of such. By independent effort a debt settlement was effected with United States with the result the Belgian Franc parted company with the French and through credits arranged here the currency was stabilized. Her rate opened at .0498 and reached its high in the same month at .0522½. In June with exchange on Paris falling to .0449 the rate was depressed to .4445½. Hereafter little change was noted, the price closing at .0453½ in November.

Italy.—Notwithstanding a lack of natural resources, that great bulwark of financial strength, balanced her budget and faced her obligations with a united front. Her debt funding commission brought to a speedy conclusion the adjustment of her debt to the United States and large credits immediately followed, giving stability to her market and confidence in her ability to maintain rates. The Lira opened at .0422 the rate being fairly maintained above four (4) cents until March, when a low for the movement of .0398¾ was recorded with subsequent rally to .0412½. Steadiness prevailed with slight change through April and part of May, when a low of .0397 reflected a drooping tendency. In June the price slumped to .035 and July witnessed the low for the year of .0334½. August saw a recovery to .0377¼ and September a further rise to .0429 with later drop to .0406; hereafter the quotation remained relatively steady and the last for November was .0404½.

Japan.—The Yen at the opening of the year was .3860. Japan surmounted a difficult situation in her restorati program. The Earthquake shock ha reduced her productive capacity an occasioned additional need for fund The Government inaugurated a pr gram of economy, discouraging u necessary imports and lending effort to increasing exports. A drop to .38 in January was followed by a rise i February to .3990 and March set th figure close to .42 with subsequen reaction to .4138. Again advancin in April to high of .4220 and closin May at .4165. Suggestion of retur to gold parity strengthened the posi tion of the Yen and a real program t that end was semi-officially an nounced. In confirmation of govern ment intentions several shipments o gold were sent here with the express purpose of supporting Exchange With alternating rallies and reac tions a high of .435 was established in November and prospects o return to Gold basis seemed fair for 1926.

Germany.—German Exchange afforded little interest, merely a nominal market obtaining and transactions being in amounts of little consequence. The rate was 2380-2381 with only fractional deviation and business was in the nature of special operations.

Switzerland.—The Swiss Franc was steadily maintained all year, the rate averaging well above gold parity. Opening January at .1949 and establishing a high of .1950 in that month. Recording a low for the year in February at .1920. The rate was .1928 at end of November.

Spain.—Pesetas opened at .1399 and made a low mark for the year at .1397 in January, closing that month at .1432. There was slight variation during February and March but April saw the rate at .1465 and May .1473, the high for the year. The rate changed but little during the next five months and drooped in November to a close of .1418. An apparent tendency to rise during early months was halted by the resumption of large scale military operations in Morocco.

Canada experienced a year of general prosperity with crops close to previous high records. New York bought generously of Canadian securities and this together with large grain shipments brought her funds from a low of 7/16 discount in January to a high of 3/16 premium in October. The premium on the Canadian dollar made shipment of gold a more profitable operation than purchase of remittances, and large amounts of metal went over the border. These shipments offset largely our imports of gold from London and brought the rate back to parity. A later rally in November to 3/16 premium sent further shipments of gold North but the rally was short-lived and the rate subsequently dropped to 1/16 discount in December.

BANKING LEGISLATION

By Thomas B. Paton

General Counsel, American Bankers' Association

There has been a considerable variety of legislation affecting banks enacted during the year 1925, both by the States and by Congress. During the year forty-two State Legislatures held regular sessions and the short session of the Sixty-eighth Congress extended from December, 1924, to March 4, 1925.

Federal Statistics.—The United States Arbitration Act, approved by the President on Lincoln's birthday to take effect January 1, 1926, will have a farreaching beneficial effect in both the banking and commercial world. It makes valid and enforceable written provisions or agreements for arbitration of disputes arising out of contracts, maritime transactions or commerce among the states or territories or with foreign nations. Under this act and companion acts which have already been passed in New York and New Jersey and other states, the way is opened for the settlement of commercial disputes by arbitration in place of long delayed and expensive litigation. The American Bankers' Association is lending its influence to the furthering of similar acts in all the States.

Congress during the short session made a number of amendments to the Agricultural Credits and Federal Farm Loan Acts without fundamental change in the law. The Purnell bill which increases the appropriations for agricultural experiment stations, sponsored by the American Bankers' Association was also passed. An act directly affecting National banks, passed at the short session, authorizes the Comptroller of the Currency to destroy the oaths of directors of national banks after ten years from filing and disqualifies an officer of a director's bank to take the oath.

State Banking Laws.—In the field of state legislation there have been so many enactments that only a partial summary of an attempt to cover the subjects of more general interest can be made. In three of the States, Idaho, Oregon and Wyoming, new banking codes have been enacted. In Wyoming, the new banking law is practically the same as the old code except that it contains provisions for the State Examiner to act as receiver and for filing a lien against the property of stockholders immediately upon the closing of the bank, which lien continues in effect until the assessment is paid. In many of the states in recent years similar changes have been made by which the old and expensive liquidation through receivers appointed by the courts have been done away and the winding up of the affairs of an insolvent bank is placed in charge of the State Bank Commissioner or Superintendent, a much less expensive and more expeditious method. In Idaho and Oregon entirely new banking codes have been enacted. In Pennsylvania the work of revision and codification of the banking laws has been in charge of a Commission which has been continued by the Legislature for another period of two years. In Iowa a law has been passed creating a State Banking Board to advise with the Superintendent of Banks in the administration of all banking laws and in Kansas a banking board of five members has been created. In New Mexico a new State Banking Act drawn by the New Mexico Bankers' Association failed to pass.

Building and Loan Associations.—In New Jersey, a new law governing building and loan associations has been passed. The Utah Legislature has also passed an act relating to the organization, operation and supervision of building and loan associations, industrial loan companies and certain investment companies. In Montana a law has also been passed to create a Banking and Building and Loan Association Code Committee and prescribe its powers and duties.

Violent Crime.—Efforts by many State Legislatures to stem the rising tide of crime is indicated in a variety of legislative enactments. For example, in New Mexico, a bill has been passed making bank robbery punishable from five to ninety-nine years' imprisonment and embezzlement from a bank punishable from five to twenty years; in Indiana the bankers succeeded in having passed a "pistol-toting" bill increasing the penalty on gun-carrying.

Anti-fraud Acts.—Utah has passed a Blue Sky Law aimed to check the promotion of fraudulent securities and the Blue Sky Act of New York (the Martin Act) has been amended by a law which gives the Attorney-General jurisdiction over all commodities dealt in on exchanges, such as cotton, grain and sugar, his former supervision extending only to securities. The amendment also requires the publication of the names and addresses of all persons promoting stock issues and requires the filing with the Attorney-General of notice of such issues.

Investments.—In Kansas, State banks have been qualified to purchase Federal Farm Loan Bonds and such bonds have been made legal investments for trust funds in Ohio. Joint-stock land bank bonds have been made legal investments for trust funds in New Jersey.

Security Acts.—Sound banking has been furthered by enactments in some of the states increasing the minimum bank-capital requirements, limiting loans to officers and directors and enlarging the powers of supervising state officials. A number of states have enacted new provisions looking to increased safety of public funds deposited in banks and one state, Iowa, has taken public funds deposited in banks out of the preferred class.

Guaranty of Deposits.—Bills were introduced in several states for the guaranty of bank deposits but in every case were defeated. The disastrous experience of Oklahoma which has already repealed this legislation and of other states has done much to convince the public of the unsoundness of the theory of compulsory guaranty of bank deposits. This year South Dakota has repealed its guaranty law, subject to ratification of the bill by the people. In Kansas, the bank guaranty law has been amended to discontinue the payment of interest on existing and future certificates held by depositors of failed banks. In Nebraska the powers of the Guaranty Fund Commission have been enlarged and some defects discovered in two years' operation of the guaranty law have been corrected. The Guaranty Fund Commission is composed of seven state bankers elected from different parts of the State by the State bankers. This Commission has full power in the handling of banks taken over by the Department of Banking, and of the receiverships. The Guaranty Fund Commission may conduct such banks as going concerns for the purpose of liquidating the same or for the purpose of selling the bank as a going concern after the loss has been taken out of the bank through payment by the Guaranty Fund. In Texas, an important amendment to the Guaranty Law has been passed, permitting state banks to withdraw from the Guaranty Fund and become guaranty bond banks, with the approval of the Banking Commissioner who passes on the condition of the bank and passes on the bond furnished. Henceforward they will be required to furnish bond only in the amount of their capital stock regardless of the size of the banks' deposits. This bond can be a personal bond signed by the directors of the bank or it may be a surety bond.

Bank Taxes.—A number of states have amended the tax laws in their application to banks. In Kansas a money and credits tax of 2½ mills on intangibles has been established in lieu of all other taxes and a mortgage registration act has been passed which provides for a flat fee of 25 cents per $100 on real estate mortgages and exempts them from all other tax. In Vermont a new law has been passed relating to the taxation of intangibles, and in Utah a law has been passed amending the law relating to the assessment of bank stock by making the book value the basis of assessment with deduction of real estate.

Measures Recommended by the American Bankers' Association.—The following have been passed this year in states named:

Uniform Sales Act, Delaware and West Virginia;
Uniform Fiduciaries Act, Idaho and Utah;
Time Limit on Stop Payment, Idaho, Michigan, West Virginia and Wyoming;
Payment of Stale Check, Idaho, Kansas, Michigan and New Mexico;
Adverse Claim to Bank Deposit, Idaho, Kansas, Michigan, New Mexico, Oregon and West Virginia;
Payment of Deposits in Two Names, New Mexico and North Dakota;
Competency of Bank and Corporation Notaries, Oregon;
Nonpayment of Check through Error, Wyoming;
Saturday Afternoon Bank Transactions, Idaho and Rhode Island;
Forwarding Check Direct to Payor, Nebraska, North Dakota, Utah, West Virginia and Montana;
Amendments to Uniform Warehouse Receipts Act, Idaho;
Filing of Federal Tax Liens, Arizona, Idaho, Indiana, Maine, Nevada, Oklahoma, Tennessee and Washington;
False Statements for Credit, Texas;
Slander and Libel of Bank, Texas.

Modification of Association measures passed in earlier years have been made in the following states:

Payment of Forged and Raised Checks, Idaho and West Virginia;
Payment of Deposits in Two Names, Idaho and Rhode Island;
Payments of Deposits in Trust, Wyoming;
Checks or Drafts Without Funds, Delaware, Maine, Missouri, Nevada, North Carolina, Tennessee, Texas, Vermont and Wyoming;
Burglary with Explosives, Texas.

STATISTICS OF BANKING

By Gurden Edwards
American Bankers' Association

Comparative figures showing the condition of all banks in the United States, other than mutual savings banks and private banks not under State supervision, showed a continuous rise in loans and investments, which on June 30, 1925, reached a new record total of $41,561,000,000, an increase of $3,154,000,000 over the total for June of 1924. Total deposits, exclusive of banks' deposits, were $3,750,000,000 above the amount reported at the end of June, 1924. Borrowings from Federal reserve and other banks went up $140,000,000 between June, 1924, and June, 1925.

Loans, investments and deposits of mutual savings banks increased between June, 1924, and June, 1925, as follows: loans, $405,000,000; investments, $134,000,000, and deposits, $452,000,000. If the figures for the mutual savings banks are added to those for other banks, the total loans of all banks in the United States at the end of June, 1925, excepting private banks not under State supervision aggregated $33,569,000,000, and their investments $15,375,000,000, a total of $48,944,000,000, or $3,686,000,000 more than reported in June a year before.

The table below shows in summary form the amounts of loans, investments and deposits of all incorporated stock banks in the United States for recent dates since June, 1920.

XVI. BANKING AND CURRENCY

CONDITION OF ALL INCORPORATED STOCK BANKS

June 30, 1925.

(Amounts in millions of dollars.)

	No. of Reporting Banks	Loans and Investments			Total Dep. Exclusive o Bk. Deposit
		Total	Loans	Inv.	
All banks:					
June, 1920	28,715	36,813	28,177	8,636	32,642
June, 1921	29,477	34,318	25,857	8,461	31,134
June, 1922	29,092	34,166	24,647	9,519	31,944
June, 1923	29,342	37,359	26,793	10,566	34,512
June, 1924	28,451	38,407	27,222	11,185	36,841
October, 1924	28,385	39,610	27,958	11,652	37,587
December, 1924	28,266	40,202	28,243	11,959	39,066
April, 1925	28,073	40,813	28,775	12,038	39,112
June, 1925	27,944	41,561	29,464	12,097	40,591
Member banks of Federal Reserve System:					
June, 1920	9,399	25,945	19,784	6,161	21,887
June, 1921	9,745	24,311	18,206	6,105	21,612
June, 1922	9,892	24,358	17,296	7,062	22,366
June, 1923	9,856	26,675	18,880	7,795	23,837
June, 1924	9,650	27,262	19,264	7,998	25,675
October, 1924	9,635	28,451	19,820	8,631	26,282
December, 1924	9,587	29,027	20,182	8,845	27,814
April, 1925	9,531	29,285	20,390	8,895	27,145
June, 1925	9,538	29,702	20,814	8,888	28,403
Non-member banks:					
June, 1920	19,316	10,868	8,393	2,475	10,755
June, 1921	19,732	10,007	7,651	2,356	9,522
June, 1922	19,200	9,808	7,351	2,457	9,578
June, 1923	19,486	10,684	7,913	2,771	10,675
June, 1924	18,801	11,145	7,958	3,187	11,166
October, 1924	18,750	11,159	8,138	3,021	11,305
December, 1924	18,679	11,175	8,061	3,114	11,252
April, 1925	18,542	11,528	8,385	3,143	11,967
June, 1925	18,406	11,859	8,650	3,209	12,188

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DIVISION XVII
INSURANCE

LIFE INSURANCE

By Wendell M. Strong
Associate Actuary, Mutual Life Insurance Co., New York

General.—The year 1925, like each of its predecessors for many years past (with a single exception), shows a substantial gain in amount of life insurance issued and of insurance in force. The remarkable thing about life insurance is that while other kinds of business have their good and bad years, the record of life insurance is each year better than the past, the only fluctuations in recent years (with the exception of the amount of insurance issued in the year 1921), being in the amount of gains. The insurance issued in the first eleven months of 1925 shows an increase of over 20 per cent. over that of the corresponding period in the year 1924, while 1924 showed an increase of more than 10 per cent. over 1923. The statistics which are available on the basis of the experience of forty-five companies show, for the first eleven months of 1925, an increase over 1924 in ordinary insurance issued of 16.4 per cent., in industrial insurance issued of 22.9 per cent, and in group insurance issued of 65.5 per cent. The only adequate explanation of such continued and uninterrupted progress in life insurance would seem to be that it has more and more the confidence of the public and that there is a constantly increasing appreciation and understanding of its purposes and uses.

The magnitude of the business can, perhaps, be better appreciated if we consider that the amount of life insurance, including industrial and group insurance but excluding the government war risk and fraternal insurance, in force at the end of th year 1925, will be approximately seventy billion dollars and the asset of the companies will be somethin over eleven billion dollars.

The tremendous growth of the business may be realized in another way namely, by a comparison of the siz and business of the companies now with what they were six years ag early in the post-war period. The assets, the surplus, the amount of insurance in force, and the premium income have in that period all more than doubled.

Special Causes of Growth.—When we turn from the growth of the business as a whole to specific developments which have aided it, we find among them two which should be especially mentioned. The first of these is the remarkable increase in the use of the various optional settlements provided for under modern policies by which the company either retains the proceeds and pays interest during the life of the beneficiary, or pays the proceeds in instalments (allowing interest in so doing) or pays an income for life to the beneficiary. These optional settlements have been contained in policies for many years but have been little used. Recently the appreciation of their value by the insuring public has developed rapidly, with the result that a much larger use is now made of the opportunities that they offer. This increased knowledge, both on the part of agents and of the insured themselves, of the value and adaptibility of these options has undoubtedly resulted in an increased demand for insurance and a more adequate conception of the amount of insurance required in individual cases.

It is sometimes said that the original insurance insures the insured, while the special settlements insure the beneficiary. This is true to a great extent since it is unquestionably often the case that where settlement is made in a single sum the beneficiary loses in a short time, through lack of business knowledge and discretion, the proceeds of the insurance which the insured may have struggled year after year during his lifetime to maintain. The optional settlements meet this difficulty by furnishing an income in some form rather than a lump sum.

A second notable factor in the steady increase of life insurance business is a result of the heavy inheritance and estate taxes, both State and Federal, that now exist, and have existed for some years. Large estates have to pay in cash or its equivalent a very large amount of tax. Usually the estate consists only in small part of ready cash, while securities or property cannot readily be turned into cash without sacrifice. A life insurance policy frequently seems the best way to provide the cash to meet the demand that would be made on the estate for this purpose. While the same condition has existed for a number of years, we find that here again the appreciation of the peculiar suitability of life insurance for making such provision has increased, and has had a marked effect on the amount of life insurance written.

The increase of the business must, however, be ascribed in greater measure to other and still more important causes, namely, the increase in both the population and wealth of the country, and the increasing appreciation of what life insurance can do for dependents.

STATISTICS OF UNITED STATES LIFE INSURANCE COMPANIES

(Insurance Year Book)
(In millions)

Year	Number of Companies	End of Year		Premiums Received	Total Income	Total Payments to Policyholders	Total Disbursements	New Business	Amount in Force End of Year
		Admitted Assets	Surplus [1]						
1924	297	$10,394	$1,137	$2,122	$2,703	$1,205	$1,813	$14,077 [2]	$63,780 [2]
1923	291	9,455	1,077	1,896	2,424	1,089	1,680	12,070 [2]	56,904 [2]
1922	260	8,718	974	1,672	2,137	1,007	1,481	10,539 [2]	50,028 [2]
1921	264	8,068	810	1,525	1,944	835	1,281	9,126	45,574
1920	253	7,391	777	1,421	1,796	764	1,215	10,832	41,778
1919	237	6,809	726	1,209	1,555	742	1,095	8,664	35,545

[1] Includes amounts set apart for dividends to policy holders during following year.
[2] Includes industrial and group business.

SURRENDERS, LAPSES, LOANS, AND DIVIDENDS [1]

(New York State Report)
(In millions)

Year	Number of Companies	Amount in Force End of Year	Amount of Policies Surrendered	Amount of Policies Lapsed	Policy Loans End of Year	Dividends to Policyholders	Amount Paid for Surrendered Policies
1924	38	$41,787 [2]	$698	$1,415	$1,108	$330	$198
1923	38	37,545 [2]	639	1,115	1,033	284	192
1922	37	33,461 [2]	614	1,226	977	246	191
1921	37	30,678 [2]	441	1,404	917	180	147
1920	37	28,430 [2]	330	750	758	150	112
1919	37	24,010	319	476	697	151	101

[1] Life Companies reporting to New York State only.
[2] Includes group insurance.

Disability and Double Indemnity Benefits.—A development in connection with life insurance which began to assume importance more than ten years ago was the addition to life policies of benefits payable in event of the total and permanent disability of the insured, such benefits consisting of either waiver of premium or waiver of premium and income to the insured during such disability. Another feature is what is known as "double indemnity" (i.e., payment of double the face of the policy in case of accidental death). In recent years these special provisions have been included in the policies of nearly all companies, and probably the greater part of life insurance now issued includes one or both of them.

The inclusion of disability benefits in a life insurance policy provides an income and also keeps the policy in force without cost in case of total and permanent disability. This is a more complete protective policy than the forms which provided for life insurance only, which were the only forms available a few years ago.

In the absence of more reliable data, premiums for disability benefits have generally been based on tables made up from the earlier experience of fraternal orders. The experience of the insurance companies with these benefits, so far as it is now available, would indicate that the premiums charged for disability benefits should be increased, and this question has been, and is, one of the most important which must be considered very carefully by the companies in the near future.

During 1925 an investigation was undertaken under the auspices of the Actuarial Society of America into the question of the feasibility of constructing a new standard disability table to replace the present standard. At the date of writing, the results of the investigation have not been announced. It may be said, however, that owing to the rapid developments which have taken place in the various companies' practice relating to disability benefits, and to the short period for which homogeneous data is available it is doubtful whether it will be possible at the present time to prepare a satisfactory table on t basis of the companies' own expe ence. Doubtless, however, valuable i formation will be obtained which w be of use in the determination of su able premium rates and reserves.

The experience with the double i demnity benefit, which is usually co pled in thought with the disabili benefits although it is of an entire different nature, has been more favo able, the experience of the compani showing that the premiums original adopted are adequate.

Non-Medical Insurance.—A ve recent development in life insuran (at least on this continent) has be the issuance of policies of limit amount without medical examinatio This practice was first adopted by ce tain Canadian companies in the b ginning of 1921, and their experien has been so satisfactory that no practically all Canadian compani have adopted it. These companies i sue new insurance of $2,000, $3,00 and in the case of one or two companies $5,000, without medical e amination, usually also allowing add tional policies at annual interval sometimes for the same amount an sometimes for less amounts only. careful selection is made and the a plicant is required to answer a car fully drawn and thorough questio naire, covering all matters whic might affect his insurability. A number of American companies have no undertaken the issue of life polici without medical examination and i one company the limit is as high a $10,000. The chief advantages to th companies are reduction in expen and facility in the transaction of bus ness, particularly in rural distric where a long journey either by th applicant or the examiner might b necessary to make the examination.

The experience of the Canadia companies has thus far been un formly good, the indications bein that the saving in expense is great than any loss through accepting a fe cases which would have been weede out by medical examination.

Mortality.—With increasing lo gevity of the population at large, th difference between "expected" an "actual" mortality tends to increas

In recent years the mortality experience among insured lives has been very favorable. Indications are that, when the full results for 1925 are known, it will prove to have been the best year ever known to life insurance in this respect, with a lower percentage of "actual" to "expected" mortality than in any other year.

"American Men" Mortality Table.—Since its construction more than sixty years ago the American Experience Table has been in many ways a standard mortality table in use in this country for premium rates, and is now the standard for reserves in most of the states having statutes on this subject. Mortality rates have been gradually decreasing for many years, particularly at the younger ages, and the general experience has now become very much better than the rates shown by the American Experience Table. In consequence of this, and at the request of the State Insurance Commissioners, a new table known as the "American Men" Table was constructed some years ago under the supervision of the Actuarial Society of America and the American Institute of Actuaries. This table is based on the experience of the principal companies from 1900 to 1915. It shows a lower mortality at most ages than the American Experience Table, and much lower at the younger insurance ages. Shortly after the completion of the new table the influenza epidemics of 1918 and 1919 occurred with resulting high mortality among insured lives. In some cases the mortality for 1918 was actually higher than that "expected" by the American Experience Table. In consequence of this and for other reasons, the American Men Table was not adopted in any state as a reserve standard to take the place of the American Experience Table. There has been considerable discussion as to the adoption of the new table for life insurance purposes and in 1925 this question has been taken up again by the insurance authorities. A committee of actuaries of the state insurance departments has been appointed to coöperate with committees of company actuaries to make recommendations in this matter.

Notwithstanding the lower mortality rates a change would make very little difference in total reserves; in fact, use of the new table would increase reserves slightly rather than decrease them. On the other hand, the lower rates of mortality would make a very considerable difference in premium rates. In the case of companies issuing participating policies this is not of much importance since any overcharge or inequality of gross premium rates is adjusted in dividends. For companies issuing non-participating insurance the situation is different. If their premium rates are too high there is no readjustment afterwards. Some of these companies, particularly among the smaller ones, would prefer to keep the present standard since the artificially high rates are a help to them. Others, and among these the largest, would prefer to charge lower premiums at the younger ages than the American Experience net table but are unable to do so because the statutes of several States require a deficiency reserve to be added to the regular reserve when the premium charged is less than the net premium by the American Experience Table. Adoption of the new table would thus solve the problem for such companies and permit them to issue insurance at lower rates at the younger ages.

Payroll Deduction Insurance.—A form of life insurance which is in process of development and which seems to be extending quite rapidly is one which is known by various names, such, for instance, as "Payroll Deduction" or "Salary Allotment" insurance. The essential feature is that at the request of the insured premiums are withheld from his salary by his employer and paid by the employer monthly to the company. This has the advantages to the insured that premium payments are automatically taken care of, and that the cost is spread evenly over his income, instead of coming due in comparatively large amounts quarterly, semi-annually, or annually.

Miscellaneous Services. — A new field entered into by one large company is the taking over a pension plan for corporations in very much the same way as group insurance is issued to companies on the lives of employees.

It will be seen from the figures given elsewhere in this article that group insurance has been increasing at an extraordinary rate.

One of the important features the year is that dividends have be higher than in the previous year, a probably higher than ever before; other words, the net cost of insu ance to policy holders has been t lowest of all time.

UNITED STATES INDUSTRIAL INSURANCE COMPANIES
(Insurance Year Book)
(In millions)

Year	Number of Companies	New Business	Insurance in Force at End of Year		Premiums Received	Losses Pai
			No. of Pol.	Amt.		
1924	54	$3,011	$68	$11,344	$818	$153
1923	49	2,615	63	10,107	712	142
1922	45	2,268	58	8,887	611	119
1921	44	1,943	54	8,006	544	106
1920	37	1,615	50	7,190	482	110
1919	38	1,304	51	6,607	412	110

Fraternal Insurance.—The statistics for fraternal insurance show comparatively little growth, although the year 1924 is ahead of the immediate preceding years.

UNITED STATES FRATERNAL ORDERS
(Insurance Year Book)
(In millions)

Year	Number of Orders	Assessments	Total Income	Claims Paid	Total Disbursements	Assets End of Year	New Business	No. of Certificates in Force, End of Year	Amt. i Force, End of Year
1924	228	$186	$216	$116	$153	$566	$1,108	$13	$9,806
1923	227	179	207	110	152	495	1,027	8	8,759
1922	245	173	198	111	152	340	1,069	8	8,688
1921	283	171	195	108	137	327	785	9	9,159
1920	336	165	181	110	136	326	1,178	8	8,879
1919	463	160	180	141	172	296	1,328	10	9,531

FIRE INSURANCE

By E. R. Hardy

Assistant Manager, New York Fire Insurance Exchange

Many of the Fire Insurance companies, most of them in fact, are permitted under their charters to write Marine Insurance and it is difficult to separate completely the returns. Progress is being made in that direction, but is not yet sufficiently complete to be final. The lines normally written are Fire, Ocean Marine, Motor Vehicles, Inland Navigation, Tornado, Hail, Sprinkler Leakage, Riot, Rain, Earthquake, and Smoke Damage.

Fire Statistics.—The amount c Fire Insurance written at the preser time is approximately one hundre billions per year. This amount wi increase as the country grows. Th is the gross amount and the ne amount would probably be about 2 per cent. less. The underwriting r sults, as they are termed, are pr sented in the following form, whic is the accepted and required for for their presentation. [See tab on page 465.]

UNDERWRITING RESULTS

(Fire and Lightning Only.)

(1924 only.)

Premiums earned	....	$571,273,096	
Losses incurred	(60.16%)		$343,654,343
Expenses incurred	(46.73%)		266,971,665
	(106.89%)		
Deficit	(6.89%)	39,352,912	
	100.00%	$610,626,008	$619,626,008

UNDERWRITING RESULTS

(1920-1924 incl.)

(Fire and Lightning Only.)

Premiums earned	....	$2,539,320,803	
Losses incurred	(57.75%)		$1,466,247,177
Expenses incurred	(46.02%)		1,168,679,360
	(103.77%)		
Deficit	(3.77%)	95,605,734	
	100.00%	$2,634,926,537	$2,634,926,537

Fire Waste.—Fire insurance is based on the amount of fire waste, at least it very closely follows that in its ups and downs.

The statistics, for the years from 1920 to 1924 inclusive, quoted below are considered the most authoritative that can be obtained.

	Population	Total Loss	Per Capita
1920—Whole country	106,418,175	* 447,886,677	4.21
370 cities	39,636,748	† 151,120,951	3.81
1921—Whole country	107,833,284	* 495,406,012	4.59
370 cities	40,324,918	† 141,406,007	3.51
1922—Whole country	109,248,393	* 506,541,001	4.63
366 cities	33,821,476	† 120,964,112	3.57
1923—Whole country	110,663,502	* 535,372,782	4.84
372 cities	42,946,639	† 147,102,119	3.42
1924—Whole country	112,078,611	* 548,810,639	4.90
366 cities	43,375,796	† 146,222,749	3.37

* Estimated from Records of the Actuarial Bureau.

† Actual figures reported.

Claims for Losses.—At the present time the claims for losses under fire policies are approaching the one million mark. As a rule there is a loss payment for every two claims. The changes through a series of years are shown by the following table:

Year	Reports Received	No. of Claims	Loss
1916......	750,000	361,742	$208,706,362
1917......	678,000	356,896	231,628,040
1918......	581,829	328,737	283,103,101
1919......	588,013	310,897	256,432,319
1920......	705,088	338,946	358,309,342
1921......	812,357	378,663	396,324,810
1922......	1,022,670	460,000	405,232,801
1923......	903,140	406,413	406,245,883
1924......	949,887	427,449	*439,048,511

* Estimated by comparing the complete records of the same twenty states for 1922 and 1923.

Through a period of sixty-five years the losses have averaged between 56 per cent. and 57 per cent. of premiums received. The figures for the earlier years are not as exact as those for the later ones, but the percentage named is quite near the mark. The most remarkable variations occur in the big conflagration years, as the year of the Chicago Fire, 1871, when losses ran up to 85 per cent. of the premiums and the year of the San Francisco Fire, 1904, when the losses to premiums approached 100 per cent.

Other Branches of Insurance.—The other lines of insurance, as they are usually called, written by this group of companies, have not in many cases been segregated from the fire and lightning end for many years. Therefore, no attempt is made to present these for a series of years, but for the latest available they are as fo lows:

	Risks Written	Premiums Received	Losses Paid
Ocean marine	$12,120,600,000	$37,800,000	$26,000,000
Motor vehicle	5,481,700,000	83,835,579	37,200,000
Inland navigation, etc.	33,085,300,000	27,100,000	14,600,000
Tornado, etc.	6,410,000,000	27,100,000	13,800,000
Hail	166,400,000	8,800,000	8,000,000
Sprinkler leakage	1,261,600,000	1,600,000	988,000
Riot, etc.	638,400,000	1,093,000	266,000
Rain, etc.	125,600,000	2,600,000	1,500,000

Statistics for the same year for the Mutual companies are taken from "Distribution by States of Fire Insurance" and show that they received net premiums of $67,000,000 and incurred net losses of $31,000,000, while the other lines which they wrote made their total premiums $83,000,000 and their total losses $38,000,000.

State Legislation.—There were no outstanding changes either in the form of state legislation or legal decisions. The only exception to this might be the case in the State of Kansas, affecting changes in rates. For many months testimony has been taken on this case and the report of the referee sustained the position of the companies. That case has been appealed to the Supreme Court of the United States and must await a final decision from that body.

State Departments.—The State Departments were not unduly active in connection with this group of companies. The tendency is steadily in the direction of a more rigid control of many phases, especially that of rate making, but this during the past year was merely a steady development in that direction and nothing peculiarly new.

Methods of Rating.—The methods of rating in all the lines written show no changes of any moment. So far as Fire Insurance is concerned, the methods involved are quite well developed and it would take some years before any large change, owing to the interests involved, could be made. The changes which affect automobile insurance did not deal primarily with the fire hazard. The latter has scarcely changed at all. The two outstanding features of the year were earthquake and smoke damage insurance.

Earthquake Insurance.—The in creased interest in and demand fo Earthquake Insurance has grown ou of the earthquake at Santa Barbara Cal. Fire Insurance itself owes it great growth very largely to wha might be called the commercial o economic demand for it as distin guished from the interest of the in dividual property owner in having that form of protection for his own good. When those who sold goods on credit began to demand policies o Fire Insurance, the business receive a great impetus. This is mentione because the same cause is now being brought into play in connection with Earthquake Insurance. In those parts of the world where earthquakes are more or less a feature some earthquake insurance has always been written, although the tendency has been to eliminate it as a cause of loss unless a substantially higher premium was paid. It was this elimination which made the insurance losses due to the great earthquake and fire in Japan, September, 1923, so light. Since the Santa Barbara earthquake, however, the demand for Earthquake Insurance from those who loaned money either on mortgage or in the form of credit has been accentuated to an intensive degree. The result has been in nearly all cases an insistence upon earthquake insurance as well as fire and other forms of insurance.

The difficulty with the writing of Earthquake Insurance is the difficulty of securing a sufficient spread to provide a volume of income and a distribution of losses so as to make it a safe undertaking for the insurance companies to handle. Earthquakes are more or less local and the demand for that type of insurance is therefore a local and not a national one. The result is that, while the liability in any specified territory is apt to be very heavy, the premium receipts in that limited territory are rather light in proportion. The final solution or method of writing Earthquake Insurance has not yet been evolved. There is a proposition that all of the companies doing business in the United States form a bureau and each take a portion of every earthquake line that is written. In this way there would be secured a distribution of liability and of course of the premium. It is going to be extremely difficult even if the utmost caution is used for individual companies to write a large amount of Earthquake Insurance where the writing of that form of insurance is confined only to localities known to be subject to that kind of disaster.

Smoke Damage.—The origin of Smoke Damage Insurance, as it is being accentuated at the present time, arises from the introduction of fuel oil equipments. The question of Smoke Damage Insurance arose in connection with policies of Fire Insurance, because under the decisions of the courts a mere damage by smoke, as a smoking lamp, is not a claim under a fire policy. In the case of a fuel oil equipment the device may go wrong and a serious damage be done to the property but wholly by smoke, that is, without that degree of fire termed a "glow" which the courts have decided is necessary in order to establish a claim under a policy of Fire Insurance. The attempt to draw a suitable form to cover this type of loss has not yet been solved. One that is being used to some extent is here reproduced merely as an illustration:

In consideration of $........ additional premium this policy also covers direct loss or damage to the property insured caused by smoke from the operation of a fuel oil-burning apparatus on the described premises (when the use of said apparatus is permitted by this policy and the installation is in full compliance with such permit) whether fire ensues or not, for an amount not to exceed the sum insured, nor the interest of the insured in the property, and subject, in all respects, to the terms and conditions of this policy. Provided, however, if there shall be any other insurance on said property, this company shall be liable under this policy only pro rata with such other insurance for any direct loss by smoke from the operation of such fuel-oil apparatus whether such other insurance be against direct loss by smoke from operation of fuel-oil apparatus or not.

The difficulty with the smoke damage form of loss is not that, as in the case of fire, it may be a definite specific loss which can be located; that is, a sudden outburst which leaves no question as to a damage having been done, but in many cases there is a possibility of an injury done to the property arising from a fuel oil equipment which may injure property not by a sudden outburst but by a gradual discoloration, as of the wallpaper, because of this type of heating. There still remains some question as to whether proposed forms do not cover this type of loss as well as the positive outbreak form of loss. The gradual loss may be compared to an occupational disease in Workmen's Compensation as distinguished from an accident which occurs in a moment and leaves an injury of which there is no doubt.

Concentrated Insurance.—One other development during the year, perhaps as indicative of a tendency in Fire Insurance, is what is known as Concentrated Insurance. Thus a policy has been issued covering all the dairy business in New Zealand. It is placed through a limited number of offices and few policies have to be written in connection therewith, although the actual companies that issue policies do of course protect themselves by reinsurance. It will readily be seen that if this form should prove to be practical in a few cases, there would be an effort to extend it in many others, as has happened in connection with Life Insurance where the group method is being developed very rapidly.

MARINE INSURANCE

By Douglas F. Cox
President, U. S. Merchants' and Shippers' Insurance Co.

War Business.—The history of marine insurance during the past ten years, in common with that of other kinds of business, has been greatly affected by the world war and the events which followed in its train. In consequence of the demand for insurance against the risks of war on the enormous values of the hulls of vessels at that time and of the cargoes which they carried, marine insurance came suddenly into great prominence in this country. Attracted by the high rates and large volume of premium, many fire insurance companies which had theretofore taken little or no interest in the business appeared prominently in the market. A number of smaller companies were also formed at that time for the purpose of getting a share of the marine business.

In spite of the enormous losses which were incurred through the action of the German submarines, the war-risk business proved generally profitable and the companies prospered accordingly.

Post-War Business. — After the close of the war, when the values of vessels steadily decreased and the merchandise carried by them also decreased in volume and value, the market found itself in a very unfortunate position. The companies interested in the business were not only much more numerous than ever before, but were accustomed to years of large volume of premium and handsome profits. Being now confronted with a steady contraction of the volume of premium obtainable, a period of fierce competition ensued and has continued up to the present time. The underwriters in charge of some of the newer offices were comparatively inexperienced and in the struggle to maintain the premium volume, rates have been reduced far below the point of adequacy, and conditions more and more favorable to the assured have been added to the policies, which bring in a constant stream of losses arising from causes which in forme years would not have been though possible to cover by marine insuranc

Many of the smaller companies organized during the war have gone ou of business and a number of the fir companies have ceased writing marine; but some of the larger ones hav continued their operations on a larg scale and seem determined to continu to do the business at whatever rate may be necessary to obtain it. On company which in 1914 did a ver moderate amount of marine insurance wrote in 1924 over $8,000,000 of tha class, this figure being $3,000,00 more than any other company.

International Transaction.—Marin insurance is essentially internationa in character since, through the aid o brokers with connections in London, i is practically just as convenient fo the American owner of a fleet of vessels to insure in the London marke as in this or the shipper of merchandise may arrange to have it insured by the consignee in Europ with companies there just as conveniently as he can arrange to place the insurance here. This being the case, rates and conditions in this market are always dependent in a great measure on rates and conditions in the London market, which is the world center for this class of insurance; unfortunately, during the years since the war, the situation in London has been the same as here, if not worse, and the senseless reduction of rates year after year has gone on there in the same way.

Returns.—It is practically impossile to obtain satisfactory figures in regard to the results of marine insurance, for the reason that very few companies place marine risks only, and in the published statements, the marine figures have been combined with the fire figures and figures of the automobile business, so that it has been impossible to properly separate them. In very recent years the annual statements have shown a division of the receipts to some extent, but in the matter of expenses it is still impossible to separate them. The figures of the Atlantic Mutual Insurance Company, which is the oldest marine insurance company in this country and does a gross business of over $2,000,000, are usually left out of any tabulations; as the returns which it makes to its policy holders on a large part of its business so complicate their statements that it is impossible to compare their figures with those of other companies.

Little of the business done in this country is taken by companies which are not entered in the State of New York; hence the *Annual Report* of the New York Insurance Department practically covers the situation. In 1914 only seventy companies reported any business to the New York Department under the head of "Marine and Inland" the total premiums being $34,000,000. In 1919 one hundred and fifty companies reported business of that class to the New York Department, the total premiums being $135,000,000.00.

In 1924 there were one hundred and twenty-nine companies which reported business to the New York Department under the heads of "Ocean Marine" and "Inland Marine"—the total premium amounted to $69,000,000.00, with losses paid of $44,000,000.00—the losses incurred being about $42,000,000.00. Of these companies, forty-six wrote premium in this class of less than $100,000.00 each, fifty wrote premium of between $100,000.00 and $500,000.00, seventeen wrote between $500,000.00 and $1,000,000.00 and sixteen wrote over $1,000,000.00 each. The sixteen largest incomes amounted together to $42,900,000.00—the largest individual income being $8,600,000.00 and the two next largest $5,700,000.00 respectively. These sixteen companies therefore controlled about sixty per cent of the business.

Tabulation.—In tabulated form, these figures are interesting:—

	1914	1919	1924
Under $100,000		27	46
$100,000 to $500,000		51	50
$500,000 to $1,000,000.........		30	17
Over $1,000,000		42	16
	70	150	129
Total premium	$24,000,000	$135,000,000	$69,000,000

This shows the large increase in the number of companies between 1914 and 1919 in spite of the elimination of the German companies and the comparatively small decrease in the number of companies and the large decrease in the volume of premium between 1919 and 1924. It also shows the large increase in the number of companies doing less than $100,000—as a matter of fact, many of them are doing a very small amount.

It is also an interesting fact that the sixteen companies writing over a million each in 1924, their aggregate premium being 60 per cent. of the total, wrote only 38 per cent. of the total in 1919. Six of these wrote 36 per cent of the total in 1924, although they only wrote 16 per cent. in 1919. Three of them have increased their aggregate premium by $4,800,000 and one has increased from $4,800,000 in 1919 to $8,600,000 in 1924, and this is in spite of the large decrease in the total. This shows that as a result of the fierce competition since the war, an increasingly larger proportion of the business has been going to a few companies; and it is a natural assumption that those companies have been the most liberal in the matter of rates and conditions.

Hull or Cargo Insurance.—It is generally conceded that the ocean marine experience of the companies was, with some few exceptions, unprofitable in 1924 and it is also generally conceded that the experience of 1925 will be more so; this is true of the London as well as the New

York market. As to the future, the one encouraging sign is that the leading underwriters in the London market have at last come together in an effort to increase the rates on the hull business, which, if successful, might logically lead to a similar effort later on to increase the rates on cargoes. There seems to be no doubt that the American market will heartily support any advance whicl London is able to make in the hull rates, but as to the rates on cargoes no signs of coöperation for a rise have appeared in this market as yet. The cargo business is the backbone of the ocean marine here, and the future of the business depends upon whether the companies referred to above, as apparently determined to obtain business at any price, adhere to that attitude or evince a disposition to join with the other companies in an attempt to increase the rates.

Marine Insurance Syndicates.—An important occurrence of recent years is the establishment of the American Marine Insurance Syndicates. Th were formed in 1920 under pressu from the United States Governme which was determined that a mo satisfactory market should be esta lished in America for the insuran of the hulls of American vessels. response to this pressure, practical all the companies doing marine bus ness here became subscribers to t Syndicate organization; and sin that time practically all of the Ame ican hull business has been place with the Underwriter for the organ zation, acting under the advice Committees. This arrangement e ables the American market to spea with one voice in dealing with t brokers and to take advantage of an possible improvements in rates. T organization is generally considere to be a very valuable piece of ma chinery and to constitute the onl method by which the hull busines can be conducted in this countr with any hope of profit to the com panies generally.

CASUALTY INSURANCE

By A. Duncan Reid

President, Globe Indemnity Company

Regulation of Companies.—The most important occurrence in this field during 1925 was the requirement of the New York Insurance Department that a special exhibit be filed by all casualty companies showing "Acquisition & Field Supervision Cost by lines of Insurance," and also showing how fully the rules of the "Acquisition Cost Conference" had been complied with. These rules, framed and adopted in the closing weeks of 1922 by the casualty companies at the instance of the New York Superintendent of Insurance, had been approved by the National Convention of Insurance Commissioners but had not since been the subject of official inquiry. The rules were designed to limit the cost of acquiring all casualty insurance (excluding accident and health and fidelity and surety) to a basis fair alike to the public and to the companies' field representatives responsible fo business production. The effect o this requirement of a special exhibit was not only to induce earlier compliance with the "Acquisition Cost Rules," but principally to establish for the first time, what may be called "cost-accounting for casualty insurance" as a permanent part of the accounting procedure of the companies.

State Action.—No new states accepted the Workmen's Compensation principle during the year, although in Missouri a statute which was to have been effective September first was suspended by a referendum to popular vote at an election to be held in November, 1926. No sweeping changes in compensation rates were made effective during the year, although in Illinois rates were increased 6.1 per cent. on all policies existing as well as new and renewal, on account of a material increase in benefits under the Compensation Law, effective July first. Elsewhere it was felt that rate changes made in 1924 were sufficient to take care of statutory and other changes in conditions during 1925.

Compulsory automobile insurance continued to be agitated for, but only in the State of Massachusetts was legislation enacted, affecting an entire state. The Massachusetts statute does not become effective until January 1, 1927. Meanwhile, a legislative commission is investigating rates to be approved for such insurance.

Plate glass insurance will be affected for some time by the formation of a plate glass department of the National Bureau of Casualty & Surety Underwriters. "Standard" plate glass rates have been made for some time by W. F. Moore on behalf of nearly all companies writing this line. The "National Bureau," in taking over plate glass rating for a number of its members, merely extends to this class its practice and methods developed in rating of automobile and various other liability lines.

Miscellaneous liability insurance developed nothing new during the year, but the writing of the coverage for manufacturers, distributors and merchants known as Products Liability Insurance, was greatly extended. The demand for this coverage, as well as for Miscellaneous Property Damage Insurance, has grown very rapidly in the past few years. Contingent automobile insurance is another recent development in increasing demand.

Growth.—The remarkable growth of the casualty, surety and miscellaneous insurance business in the United States was continued during 1924. The total premiums written by all stock and mutual companies reached a total of $616,705,881, according to Best's Insurance Reports. The increase for the year over the preceding period was $80,000,000 in round numbers, or a gain of 15 per cent. When this figure is compared with a total of only a little over $350,000,000 in the year 1919, it will be seen that this youngest group of insurance lines is rapidly assuming giant proportions.

This growth has not been confined to any one class. Accident and health insurance has increased over 40 per cent in the last five years; plate glass has grown from less than $8,000,000 annual income to over $17,000,000; workmen's compensation has increased by over 60 per cent.; burglary and theft has grown from about $8,000,000 to over $26,000,000; liability insurance, including automobile, has more than doubled in volume; fidelity and surety premiums have nearly trebled during this period; even steam-boiler insurance, thought to be a diminishing class, has increased nearly 50 per cent.

Profits and Losses.—With this growth of volume has not come a corresponding improvement in underwriting profit, however. The year 1924 was the worst in twenty years in point of percentage of underwriting loss, according to the Insurance Year Book. One hundred companies, who wrote all but a small part of the total volume of this business, showed an underwriting loss of 2.4 per cent on premiums earned of $542,390,703. Of this number, sixty-three multiple line companies writing nearly all classes, totalling $446,171,621 of earned premiums, suffered a loss of 3.5 per cent.

Twenty-five of the one hundred companies confined themselves almost entirely to accident and health insurance and showed a profit of 3.9 per cent. on earned premiums of $49,625,685. Of this group only six companies failed to make some underwriting profit, but of the sixty-three multiple line companies mentioned above, only seventeen showed a gain while forty-six made underwriting losses.

The result of the underwriting of these one hundred companies covering the decade 1915-1924, was a profit of four-tenths of one per cent., with the multiple line companies showing a loss of one-tenth of one per cent. during that period. It is obvious that were it not for the investment profit earned by these companies, they could not survive.

Volume of Business.—The following table indicates the volume of business done by all companies in 1924, as compiled by Best's Insurance Reports. Attention is called to the fact that the loss ratios are for losses paid to premiums written. Ratios of incurred losses to premiums earned are not available for all companies, as all but a few State Insurance Departments require statements on the basis of premiums written and losses paid. The premiums-earned, losses-incurred bas is far more truly indicative of r sults in these classes of insuranc because the usually large increas in income, and the large proportio of losses which have been incurre but are not payable at date of r port, tend to obscure the true facts However, the total loss ratio as give below—53.1 per cent.—compare closely to the earned premium los ratio—53.2 per cent.—of one hun dred leading companies.

Class of Business	1924			1923		
	(1)	(2)	(3)	(1)	(2)	(3)
Accident and health	$109,829	47.9%	119	$ 95,141	49.6%	96
Auto and teams, property damage and collision	49,646	57.1%	86	38,196	59.0%	72
Burglary and theft	26,749	49.0%	53	24,538	43.1%	47
Check alteration	28	3.0%	2	28	1.7%	3
Credit	4,240	36.7%	5	3,768	27.8%	4
Engine and flywheel	2,748	32.2%	22	2,919	27.8%	17
Fidelity and surety	83,237	41.4%	57	74,121	37.9%	57
Liability	151,660	49.1%	83	132,268	47.3%	84
Livestock	1,274	64.6%	4	1,028	71.2%	4
Plate glass	17,217	36.4%	59	15,975	42.1%	47
Sprinkler	837	48.8%	4	854	43.0%	4
Steam boiler	6,463	16.7%	26	6,146	14.2%	24
Workmen's compensation	162,409	69.7%	94	140,856	71.2%	87
Workmen's collective	260	40.2%	5	201	53.7%	6
Totals	$616,706	53.1%		$536,040	52.6%	

Column 1—Premiums written in thousands of dollars.
Column 2—Ratio of loss and loss expense paid to premiums written.
Column 3—Number of companies reported on.

Fidelity and Surety Bonds.—The outstanding features of the year were the continued increase in this class of insurance and the increase in the wave of crime which, sweeping over the country, reflected itself in the Fidelity losses of the Companies, such losses reaching their peak in this year. Losses through bank failures were heavy on Depository Bonds throughout the year due to the upheaval in banking conditions throughout the western sections of the country during the two years preceding.

Fidelity premiums written in 1924 exceeded the sum of thirty million dollars which means an ever increasing number of employers requiring this form of protection, and that it is needed is evidenced by the fact that they were paid losses of over eleven millions.

Surety business kept apace in the increase, the total premiums being well over forty-eight million dollars on which twenty million dollars in losses were paid.

There was a decided movement for improving the underwriting of these vast lines by the creation of a "Committee for Better Underwriting" which has ably functioned. Also, contractors, acting through their Associations, and the Surety Companies reached a much clearer understanding of the others' needs, in this manner creating factors for future good results.

DIVISION XVIII
AGRICULTURE AND FISHERIES

CONDITIONS OF AGRICULTURE

By William Marion Jardine
United States Secretary of Agriculture

Production.—Farm production in the United States was somewhat smaller during the crop year 1925-26 than in the preceding crop year. Advancing farm commodity prices, however, promised to offset the effect on farm incomes of the decreased production. It is estimated that the gross income from agricultural production for the year will be slightly more than in the crop year 1924-25, and considerably larger than in any of the three preceding crop years. There were marked differences in agricultural prosperity as between States. As between crops, however, production was fairly well balanced. There was no large surplus of any important crop, and of few products was there a marked scarcity. In most parts of the country progress was made toward normal conditions. In recent years the general trend of American crop production has been upward. There are no indications that this trend will not be continued. The high prices now paid for some crops may bring about a material increase in the acreage planted for the next harvest.

In the great area from northern South Dakota to the Rio Grande and west of the Rockies drouth seriously reduced yields in the crop season of 1925. Damage from drouth was also serious in the area extending from the Ohio to the Potomac Rivers southeast to central Georgia and east to the Atlantic. In parts of these areas there was much distress among farmers. Altogether, 15 States were hard hit by drouth. Elsewhere crop yields were good but did not quite offset the reduction in the stricken areas. Yields for the country as a whole averaged slightly below the average during the last 10 years. Pastures were poor, particularly in the butter-producing States. Fewer hogs were available for market. It was noticed that the relative scarcity of certain crops brought about a fuller utilization of them than usual. Fewer apples rotted under the trees, and a larger proportion of the potato crop was used for human food.

Cotton.—Cotton production was estimated at approximately 15,386,000 bales. This production ranks with the crops of 1911 and 1914 as one of the three largest on record.

Wheat.—Wheat production of all varieties was in the neighborhood of nearly 700,000,000 bushels, or 175,000,000 bushels less than in the preceding year. The crop was the smallest since 1917, and in proportion t population the smallest since 1890. A fairly large acreage of winter wheat was planted but the area killed by unfavorable weather conditions amounted to nearly 10,000,000 acres, or 22.5 per cent. of the area sown. This was the heaviest abandonment on record, with the exception of that of 1917. The yield of winter wheat per acre averaged only 12.7 bushels, the lowest since 1914. Spring wheat production was 13.3 bushels per acre, about one bushel per acre above the average of the last five years, but 2.6 bushels per acre below the large yield of 1924. To some extent the reduction in the yield of spring wheat was offset by a large increase in the acreage planted to that variety in the Pacific Northwestern States, where spring wheat was substituted for winter wheat killed by frost.

Corn.—A corn crop of 3,013,000,000 bushels, nearly one-fourth larger than that of 1924 and of much better quality, was harvested. This production, however, was less than the average amount harvested the preceding four years. Excellent yields were obtained in the central portions of the Corn Belt and practically everywhere north of the Ohio and Potomac Rivers. Corn in the Southwest, however, was nearly a failure. A total of 1,470,000,000 bushels of oats, and 226,000,000 bushels of barley was harvested. These yields were just about enough above the average of recent years to balance our increasing population. The flaxseed crop of 22,000,000 bushels was much below the quantity harvested last year. There were sharp reductions in both acreage and yields of flax. Nevertheless, the crop was nearly double the average flax production during the 10 years previous to 1924. The hay crop of 1925 was only 98,000,000 tons, the smallest since 1918.

Buckwheat.—Buckwheat was also a good crop, and rice production not far below the usual average. Yields of rye, sugar beets and clover seed were low, as also were yields of sorghum for syrup and broomcorn. The apple crop was the smallest since 1921. Citrus fruits yielded fairly well. The potato crop of 346,500,000 bushels was the smallest since 1919. The sweet potato crop amounted to only 81,100,000 bushels, and was the smallest crop since 1916 with the exception of that of last year.

Prices. — Calculations based on present farm commodity prices indicate that the gross income of agriculture for the crop year 1925-26 will be somewhat in excess of $12,000,000,000. This income is considerably greater than that of the depression period of 1921-22, but is below that of 1919-20. There is no continuation this year of the rate of improvement in farm incomes that was established during 1922-23, 1923-24 and 1924-25 Price changes, however may affect th forecast.

Farmers received better prices fo their products in the 1925-26 cro year than at any time during the las five years. In August the purchasin power of the prices of farm product as expressed in terms of prices o non-agricultural products stood at 93 compared with 66 in 1921. This wa the nearest approach made since th depression to the pre-war parity between agricultural and industria commodity prices. In September however, the purchasing power index dropped 5 points to 88, and price movements during October and November indicated the possibility of further recessions. It was thus evident that the general condition o agriculture had not been restored to normal strength. Large crops of corn and oats had started the prices of those commodities downward. On the other hand, the outlook in the livestock industry was more favorable than it had been for several years. A reduced supply of pork had improved the market for both beef and mutton, and prospects in the dairy industry were favorable toward the close of the year.

Cotton Crop.—Conditions in the Cotton Belt were satisfactory except in south central Texas and the Piedmont areas of South Carolina and Georgia. More than 46,000,000 acres were planted to cotton in the spring of 1925. This was the largest acreage in the history of the country. The increase was greatest in the extreme western part of the Cotton Belt, where large areas of range land have been broken up and devoted to cotton in recent years. Growing conditions were less uniformly good for cotton than in the previous year but were extraordinarily favorable in many sections, with the result that the third largest cotton crop in the country's history was picked.

Nevertheless, this crop was not excessive in the light of market requirements. The year ended July 31, 1925, had left the world in perhaps the best balanced condition as between cotton supplies and consumption that had existed since the war. Our increased production of cotton was accompanied by recovery of the power to consume cotton in Europe. This was attested by the exports from the 1924 crop, which were over one-third larger than the average for the preceding five years, and by exports for the first months of 1925, exceeding even those of the corresponding period of 1924. Domestic business conditions likewise improved and brought about sharply increased mill consumption of cotton as the year advanced. In September the purchasing power of cotton in terms of other commodities was 12 per cent. above the average for the five years preceding September, 1914. Although this figure represented a reduction from the purchasing power of cotton in 1923-24 it nevertheless compared very favorably with that of other crops grown in the South.

Wheat Crop.—Our wheat situation at the close of 1925 was very different from that existing a year previously. With a large world crop, the United States had only a little more than enough wheat to meet domestic requirements. The wheat crop of the Northern Hemisphere, outside of Russia and China, was estimated as nearly 9 per cent. greater than the 1924 crop. It was larger than the pre-war average production in the same countries. Russia was reported to have considerable wheat for export. Prospects were good for the wheat crop of the Southern Hemisphere. The world's rye crop also was much larger than that of last year.

In spite of these circumstances the wheat price situation in the United States remained favorable. The shortage in supplies of several classes of wheat indicated that the country would be on an import basis at least for the greater part of the crop year. Anticipating this situation, the wheat markets recorded prices of wheat for December delivery in Chicago, Minneapolis and Kansas City approximately on a par with the price in Liverpool and considerably higher than in Winnipeg. There was every prospect that as high grade milling wheat became scarcer in the United States the margin between the domestic and foreign price of wheat would widen to the extent of encouraging imports.

This situation prompted the farmers to plan a large increase in their wheat acreage. The doubtful wisdom of this course was pointed out by the United States Department of Agriculture. Even with the same acreage of wheat as that sown in 1924, a good average yield would place the United States on an export basis for most if not all classes of wheat. As the trend of production in competing countries is sharply upward, it is obvious that largely increased acreage in the United States cannot be sown without danger of producing a burdensome surplus. Only poor crops in foreign wheat producing countries can result in a situation like that of 1924-25, when the farmers of the United States had a large crop which they were able to sell at high prices. The wheat producing area of Argentina, Canada and the United States is now 53 per cent. above the pre-war average. These countries have not yet reached their limit of wheat production. In view of their advantage over our farmers in the matter of production costs, it seems highly desirable that our wheat acreage should not be largely expanded.

Livestock. — Livestock producers found themselves in a generally favorable position in 1925. Hogs averaged more than 60 per cent. higher in price than during the first half of 1924. At times they brought nearly double the 1924 prices. Cattle sold at the highest prices registered since 1920, and the average price for lambs in August was $1.50 a hundred pounds higher than in 1924. Lessened supplies were probably responsible for the advance in hog prices, yet the supplies were not reduced in the same proportion as the prices increased. Marketings of cattle, hogs and sheep were heavier during the first half of 1925 than in the corresponding period of 1924. The most gratifying feature of the livestock situation was the advance in cattle prices. Depression in the livestock industry had been more severe than in perhaps any other branch of agriculture, and cattlemen had begun to wonder whether the turn in the road would ever come in sight. They had the gratification toward the close of 1925 of seeing cattle prices advance in spite of increased marketing probably because the proportion of the beef cattle in the country was known to be decreasing.

In the sheep industry favorable conditions prevailed as they had done since 1923. It seemed advisable, as the year closed, for sheep men to bear in mind the tendency of their business to go from one extreme of production to the other. Inexperienced sheep raisers were being attracted into it by its prosperity. Prudence in expanding the number of sheep on farms and ranches seemed necessary.

Financial Position.—Good crops and increased prices effected a great improvement in the financial position of our farmers in 1925 and satisfactory liquidation of debt took place during the year in most areas. Large numbers of farmers were still in financial difficulties, however, particularly in regions where commitments for high-priced land reached large proportions in the post-war boom years. In the range cattle country likewise, there was a considerable amount of debt remaining from the depression period.

Numerous bank failures in the last few years have complicated the farm credit situation in certain areas. These areas suffered last year from impaired confidence in the banking situation. Some of their solvent banks deemed it necessary to maintain extremely large cash resources. Accordingly, they invested heavily in Government obligations and other gilt-edge securities. In some districts the proportion of bank deposits represented by cash or Government obligations amounted to 75 per cent of the total. Fifty per cent. was not at all an uncommon proportion. Such a use of bank resources was obviously not calculated to make credit conditions particularly easy for the farmer. The restoration of confidence in agriculture as well as in the banking situation seemed essential to the reassumption of agricultural progress in these regions.

The intermediate credit banks established under the agricultural credits act of 1923 have assumed consi erable importance, particularly i financing farmers' coöperative ass ciations. There is reason to believ they will fill an equally importan place in financing the individua farmer where local capital is inade quate or where interest rates ar high. It is true, nevertheless, tha the rediscount facilities of the inter mediate credit bank system wer utilized in most areas last year onl to a limited extent. Much remain to be done to make them fully effec tive and to bring them within th reach of the individual farmer.

Agricultural Exports.—Foreign de mand for American agricultural prod ucts was better in 1925 than it ha been at any time since 1921. Th United States exported a large sur plus of wheat and cotton at goo prices. Other products were also ex ported in large volume. The quantit of our agricultural exports for th year ended June 30, 1925, was 21 per cent. greater than in the previous year, and 26 per cent. greater than the average for the five years preceding the outbreak of the World War. In value our exports last year were more than double those of any previous year and greater than those of any year since 1921.

Foreign competition is increasing in some branches of agriculture, notably wheat production. Dairy production continues to expand in the Southern Hemisphere. Nevertheless, the outlook for our export trade in farm products is favorable in the main. This country will no doubt be the world's chief source of supply for cotton for a long time. It is likewise the largest exporter of pork products. Production of cotton outside of the United States has increased rapidly in the last two seasons. As yet, however, our position in the world's cotton market is secure. Our resources for the production of corn, the best hog feed, seem to promise a continuance of our strong position in the export trade in pork products. The recent improvement in foreign purchasing power is a beneficial influence in our agricultural export trade generally.

We shall not be dependent on forgn markets for the disposal of as rge a part of our supply of agricul- ral products this year as we were . 1925. It has already been men- oned that we have only a small mount of wheat for export. Our ports of cotton may not be reduced, it pork and lard exports will cer- inly be low in view of the decline the number of hogs on farms. ur exports of tobacco, apples and her minor items may be about the me as last year. It is possible at the trend of our agricultural ex- ort trade will be downward in the ext decade or so. A downward end existed in the 15 years before e war, as the result largely of the ct that our industrial population as increasing more rapidly than our roduction of certain farm crops. Our creased agricultural exports last ar do not necessarily mean that is cause of declining agricultural xports will not be effective again the near future.

Summary.—Compared with the situation that existed in 1921, American agricultural conditions last year were encouraging. Nevertheless, they were by no means wholly satisfactory. I have referred to the fact that the purchasing power of farm commodities in September was still 12 per cent. below the pre-war level. Such a disparity between the buying power of farm products and that of other goods, if it occurred suddenly in normal times, would be recognized as a calamity. Our disposition now is rather to look on it as a measure of the recovery agriculture has made from the depression of 1921, when the farm commodity purchasing power index dropped to the low point of 66. It is important to bear in mind, when we congratulate ourselves on the improvement that has been achieved in the farmer's position during the last few years, that a prosperous agriculture requires nothing less than an equality of relative buying power with other economic enterprises.

PRODUCTION OF GRAIN CROPS

By W. F. Callander

Chairman, Crop Reporting Board, Department of Agriculture

INCREASE

The combined production of grain ops in the United States for 1925 as nearly 8 per cent. larger than for 924, while the gross value based on ecember 1 farm prices decreased 14 r cent., according to the December timates of the Crop Reporting oard of the United States Depart- ent of Agriculture, issued December , 1925. The 1925 production is out equal to the five-year average 1920-1924. The table on page 479 ves a comparison of the produc- on of important grain crops in the nited States for 1925, 1924, and the ve-year average from 1920-1924.

CROPS

Corn.—The 1925 corn crop of 2,901,- 00,000 bushels was 25 per cent. rger than the 1924 crop of 2,313,- 00,000 bushels and about equal to e five-year average of 1920-1924. he December 1 gross value of the 1925 corn crop, however, was 14 per cent. below that of the 1924 crop. While the corn of the central States had an unusually high moisture content at husking time, the quality on November 1, 1925, was reported at 83.6 per cent. of normal for the United States, as compared with 63.2 per cent. a year ago and 81.2 per cent. as the ten-year average.

The acreage of corn harvested in 1924, 101,076,000 acres, was considerably less than the acreage planted because of heavy abandonment due to unusually wet weather during June and July. In 1925 there was no such abandonment and the acreage harvested was 101,631,000 acres. The yield of corn per acre of 28.5 bushels in 1925 was nearly 15 per cent. above the 1924 yield of 22.9 bushels, and over a bushel higher than the ten-year average of 27.4 bushels.

The Central States, from Iowa to Pennsylvania, produced one of the largest corn crops on record, but many of the Southern States produced less corn than usual. The corn yields per acre in 1925 were exceptionally high in some of the Central States. The yield of corn in Ohio was 48 bushels per acre, as compared with the ten-year average yield of 38 bushels; Indiana, 43.5 bushels as compared with 35.5 bushels; Illinois, 42.0 and 34.9 bushels; Michigan, 40.0 and 32.2 bushels; Wisconsin, 46.5 and 36.3 bushels; and Iowa, 43.0 bushels as compared with the ten-year average of 38.3 bushels. Dry weather resulted in greatly reduced corn yields in South Dakota, Texas, Oklahoma and Tennessee. The average farm price of corn on December 1, 1925, was 67.4 cents, as compared with 98.2 cents a year ago. The farm price was 55 to 56 cents per bushel in Indiana, North Dakota, Iowa and Minnesota on December 1, 1925.

Wheat.—The 1925 wheat crop of 669,000,000 bushels was hardly large enough to meet domestic requirements. It was 23 per cent. smaller than the 1924 crop of 863,000,000 bushels, and 20 per cent. less than the five-year average of 1920-1924 of 835,000,000 bushels. In 1924 the United States crop was large and the world crop small, while in 1925 conditions were reversed with a small United States crop and about the normal world crop.

Winter Wheat.—Heavy abandonment of winter wheat plantings in the spring of 1925, due to severe winter killing during the winter of 1924-1925, in Kansas, Nebraska, Indiana, Ohio, Texas, Oklahoma, Montana, Washington, and Oregon, combined with yields per acre 15 per cent. below the ten-year average, resulted in a winter wheat crop in 1925 fully one-third less than in 1924. The 1925 production of winter wheat was 398,000,000 bushels, as compared with 590,000,000 bushels in 1924 and the five-year average of 592,000,000 bushels. The acreage of winter wheat harvested in 1925 was 31,269,000 acres, as compared to 35,489,000 acres in 1924.

The yield of winter wheat in 1925 was 12.7 bushels per acre, while in 1924 it was 16.6 bushels, and the ten-year average was 14.9 bushels.

Spring Wheat.—While the yield o spring wheat per acre in 1925 was one-fourth less than in 1924, the acr age was one-fourth greater, resultin in a production about equal to tha of 1924. The production of sprin wheat in 1925 was 271,000,000 bush els; in 1924, it was 273,000,000, an the five-year average was 243,000,00 bushels. The acreage of spring whea harvested in 1925 was 20,931,000 acre compared to 16,875,000 acres in 192 The yield of spring wheat harveste in 1925 was 12.9 bushels per acre 16.2 bushels in 1924, and 12.6 bush els was the ten-year average.

In 1924, with the United State crop on an export basis, there wa only a few cents difference in th December 1 farm price of winter an spring wheat. Spring wheat was 126. cents, while winter wheat was 131. cents per bushel. In 1925, wit Durum wheat, one of the spring wheat varieties, on an export basis the average price of spring wheat on December 1 was 132.3 cents, while winter wheat was 147.9 cents, a difference of over 15 cents per bushel

Oats.—A 5 per cent. increase in the acreage of oats in 1925, and a 7 per cent. decrease in the yield per acre, resulted in an oat crop about 1 per cent. smaller than the crop of 1924, but 13 per cent. larger than the five-year average from 1920-1924. The 1925 production of oats in the United States was 1,502,000,000 bushels, as compared with 1,523,000,000 in 1924 and a five-year average of 1,324,000,000 bushels. The acreage of oats harested in 1925 was 45,160,000 acres as compared with 42,756,000 in 1924. The yield per acre was 33.3 bushels in 1925, 35.6 in 1924 and 32.5 bushels for the five-year average. The yields of oats per acre in Ohio, Wisconsin, and Minnesota, were well above the ten-year average, while a lack of soil moisture cut the Texas yield over 55 per cent. The most striking change in connection with oats was a reduction of 20 per cent. in the December 1 farm price of oats from 47.8 cents per bushel in 1924 to 38.1 cents per bushel in 1925.

Barley.—The short corn crop of 1924 was undoubtedly a contributing factor to the increase of 20 per cent.

in the 1925 barley acreage. With the yield per acre about constant for the two years, the 1925 production of barley of 218,000,000 bushels showed a gain of a little more than 20 per cent. over the 1924 production of 178,000,000 bushels. The acreage of barley harvested in 1925 was 8,243,000 acres as compared with 6,858,000 acres in 1924. The yield of barley per acre was 26.4 bushels per acre in 1925, 26.0 bushels in 1924 and the ten-year average was 25.0 bushels. In sympathy with other feed crops the farm price of barley on December 1, 1925, of 58.6 cents was 21 per cent. less than the price of 73.6 cents in 1924.

Rye.—With the acreage of rye practically the same for both 1925 and 1924, the full effect of a 25 per cent. lower yield per acre was carried over to the total production of rye, which dropped from 64,000,000 bushels in 1924 to 49,000,000 bushels in 1925. The acreage of rye harvested in 1925 was 4,088,000 acres as compared to 4,019,000 acres in 1924. The yield of rye per acre was 11.9 bushels in 1925 as compared with 15.9 bushels in 1924 and a ten-year average of 14.4 bushels per acre. The farm price of rye on December 1, 1925, was 78.1 cents per bushel, or 27 per cent. lower than the price a year ago of 106.6 cents. There was a large world crop of rye in 1925, while in 1924 the world crop of both rye and wheat was considerably below average.

Buckwheat.—The 1925 production of buckwheat was 14,647,000 bushels as compared to 13,277,000 bushels in 1924. The acreage harvested in 1925 was 776,000 acres as compared to 738,000 in 1924. The yield per acre of buckwheat in 1925 was 18.9 bushels as compared to 18.0 bushels in 1924. The farm price December 1, 1925, was 89.2 cents as compared with 103.0 cents in 1924.

Grain Sorghums.—The production of grain sorghums in 1925 was 71,000,000 bushels as compared to 80,000,000 bushels in 1924. The acreage in 1925 of 4,120,000 acres was an increase of 8 per cent. over the 1924 acreage of 3,813,000 acres. A large portion of this increase was in Texas, where lack of soil moisture in the spring of 1925 caused abandonment and reduced plantings of other crops. The yield per acre in 1925 was 17.2 bushels or 18 per cent. less than the 1924 yield of 21.1 bushels per acre. The farm price of grain sorghum December 1, 1925, was 75.7 cents per bushel as compared with 85.2 cents per bushel in 1924.

Rice.—A 6 per cent. increase in acreage and a decrease of 4 per cent. in yield per acre of rice resulted in the 1925 production showing an increase of 2 per cent over 1924. The production of rice in 1925 was 33,959,000 bushels as compared with 33,249,000 bushels in 1924. The acreage was 904,000 in 1925, and 849,000 acres in 1924. The yield per acre was 37.6 bushels in 1925 and 39.2 bushels in 1924.

FARM PRICES OF GRAINS

The index number of the farm prices of grains for November 15, 1925, was 138 per cent. of the prewar average (Aug., 1909—July, 1914), of 100 per cent. as compared with 147 per cent. for November 15, 1924. This index number for the past year is as follows: November, 1924, 147; December, 1924, 155; January, 1925, 172; February, 178; March, 172; April, 152; May, 159; June, 164; July, 152; August, 157; September, 148; October, 135; and November, 138.

On November 15 the farm price of

PRODUCTION OF GRAIN CROPS IN THE UNITED STATES
(In millions)

	1925	1924	Five-year Average
Corn [1]	2,901	2,313	2,910
Winter Wheat	398	590	592
Spring Wheat [2]	271	273	243
All Wheat	669	863	835
Oats	1,502	1,523	1,324
Barley	218	178	180
Rye	49	64	71
Buckwheat	15	13	14
Grain Sorghums	71	80	106
Rice	34	33	40

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[1] Includes corn for all purposes, including that hogged off and cut for silage, and forage, as well as that husked and snapped for grain, the yield for grain being applied to the total acreage to obtain an equivalent production figure for all corn.

[2] Includes Durum.

wheat was 168 per cent. of pre-war; corn, 116 per cent.; rye, 102 per cent.; oats, 94 per cent.; barley, 94 per cent. The general level of farm prices was 144 per cent. on November 15, as compared with 137 per cent. a year ago. The United States Bureau of Labor index number of wholesale prices of agricultural commodities for November 15 was 155 per cent of pre-war, and the non-agricultural index was 166 per cent. as compared with 150 per cent. and 160 per cent. in 1924.

LIVESTOCK

By E. W. Sheets
United States Department of Agriculture

Prosperity.—The year 1925 will probably be characterized in American livestock annals as the dawn of a period of considerable prosperity. There have been many signs on the horizon which promise that the patience and fortitude which have been displayed perennially by American stockmen are to receive a much-merited reward. The year 1926 should be the best since 1918.

As the present year nears its close, prices being received by producers for beef cattle, hogs, and lambs are well above those of a year ago; there is a fine corn crop; and the Western States have very promising prospects for winter ranges and a good supply of hay and other feeds. Throughout the year breeding stock of good quality has had steady demand at increasingly attractive prices, thereby confirming the faith of those who steadily refused to become discouraged during trying times. The man who took advantage of the opportunity to cull closely and add new blood to his herds and flocks is now in the way of being amply repaid for his foresight. Advance entry lists of our leading livestock shows verify other signs of the times, showing that breeders of livestock mean to continue to advertise their faith in their calling.

Purnell Act.—The Purnell Act, providing enlarged Federal support for agricultural experiment stations, beginning with an increase for each State of $20,000 for the fiscal year ending June 30, 1926, and mounting to $60,000 for the year ending June 30, 1930, and each year thereafter, was an outstanding event of progress in American agriculture during the year.

Quality in Meats Study.—At a meeting of the Experiment Station Directors of the Association of Land Grant Colleges at St. Louis in April, one of the four projects approved to be conducted with funds made available by the Purnell Act is one of interest to all livestock people entitled, *A Study of the Factors Which Influence the Quality and Palatability of Meat.* By the close of the year twenty-seven State experiment stations, the National Live Stock and Meat Board, the United States Department of Agriculture, and others were coöperating in steps toward the organization and inauguration of this study. A preliminary report and outline of the problems involved, together with a summary of methods and organization to be employed in the study, was published in October, 1925.

The new meats project is considered by many as representing a progressive step in livestock research of revolutionary character. The ultimate object of the study is to coordinate and render more practical the various technical experiments in the breeding, feeding and management of our domestic meat animals—to interpret the results of these various experiments in terms of the quality and palatability of meat, the end product.

U. S. Range Livestock Experiment Station.—Considerable progress was made in the development of the new United States Range Livestock Experiment Station at Miles City, Montana. This station consists of a tract of 57,000 acres transferred to the Department of Agriculture from the War Department by Act of Congress in April, 1924. Its location geographically, its topography, and the balance between its farming land and range land make it ideally suited to the study of range livestock and related forage and grazing problems. It contains 2,000 acres of grazing land, seventy-five miles of fencing, and is traversed by several miles of good roads. A breeding herd of 180 beef cattle and a band of 1,400 sheep and lambs had been established at the station by midsummer, 1925.

Livestock Improvement.—Under the "better sires—better stock" plan for extending the use of purebred sires, approximately 1,500 livestock owners placed their breeding operations on a purebred-sire basis during the fiscal year ending June 30, 1925. On September 30, 1925, this campaign had completed its sixth year of activity with a total of 15,969 persons enrolled. These owners listed 552,913 animals and 1,198,199 poultry. There were forty-three counties each having one hundred or more farmers improving their stock under the plan mentioned.

Federal Inspection of Slaughter.—Compared with the large numbers of meat animals slaughtered under the Federal meat inspection in previous years, the fiscal year ending June 30, 1925, experienced a slight decline. A total of 76,000,000 animals, or nearly 4,000,000 less than during the preceding year, but more than the average of recent years, were slaughtered under such inspection. Tuberculosis in cattle and swine was responsible for more condemnations at time of slaughter than all other diseases and ailments combined. This points to the wisdom of the campaign against tuberculosis and the necessity for continuing it with the utmost vigor.

A total of more than a billion and a half pounds of meat and meat products were certified for export in Federal meat-inspection establishments, as follows: beef and beef products, 191,075,309 pounds; mutton and mutton products, 3,035,375 pounds; pork and pork products, 1,394,205,841 pounds; horse-meat products, 2,159,230 pounds. Also a total of more than a million inedible animal products were certified by Federal inspection for export.

Livestock Emergencies.—Three emergencies constituting a menace to the livestock industry of America occurred during the past fiscal year. One was the continued presence in three counties of California of foot-and-mouth disease, which was discovered in February, 1924. Another was the appearance from a different source of the same disease in Texas. The third was the outbreak and rapid spread of European fowl pest in a number of Eastern and Midwestern States.

The last outbreak in California occurred on April 5, 1925, on previously infected premises. Diseased herds were promptly slaughtered and buried, frequently on the same day that infection was discovered, and the premises were promptly disinfected. Deer in the Stanislaus National Forest contracted the disease from infected cattle with which they mingled, but after a vigorous campaign all deer showing evidence of infection were killed.

The last outbreak in Texas was discovered in a herd on October 14 and this herd was destroyed the following day.

The outbreak of European fowl pest marked the initial appearance of this dread poultry disease in the United States. It was discovered in the fall of 1924 and was virtually eradicated by May 1, 1925, infection after that date manifesting itself only in one flock of chickens in New York.

DAIRYING

By C. W. Larson

Chief of Bureau of Dairying, Department of Agriculture

Conditions.—The year 1925 has been one of the most stable and uneventful of recent years as far as production and marketing are concerned. The year 1924 showed a material increase in production with a somewhat restricted buying power, which resulted in an enormous accumulation of butter in storage and a somewhat depressed market. The year 1925, on the other hand, absorbed all this surplus at a relatively good price. The prices of whole-milk and skim-milk products have been good, in contrast with the very low price for these products last year.

The special value of milk and its products has been brought to the consumer's attention through the press and especially through organized efforts supported by the industry and by State and national extension forces. Demonstrations at public institutions where large numbers of children are fed have proved that the liberal use of milk in the diet improves the health and the development of the child.

Production.—At the present time the supply and the demand for milk and dairy products just about balance. Our population is increasing at the rate of about one and a half million a year, and it is estimated that on January 1, 1926, there will be 112,500,000. The number of dairy cows on farms January 1, 1925, was 25,319,000—about 226 dairy cows for each 1,000 people. The average milk production of the cows in the United States in 1925 is estimated to be 4,368 pounds, containing 175 pounds of butterfat. This is an increase of more than 500 pounds of milk per cow in six years, which has been brought about by the general practice of heavier feeding, and to some extent, by the careful culling of low producers.

The coöperative cow-testing associations have grown to a total of 732 associations with 18,677 members owning 307,073 cows. The average production per cow in 260 of these cow-testing associations is 6,345 pounds of milk and 258 pounds of butterfat. The decrease in the official testing of pure-bred cows noted last year shows signs of improvement, and some new records have been made. The Holstein cow, May Walker Ollie Homestead 300043, still holds the United States record for butterfat of 1,218.59 pounds; and the milk record is held by another Holstein, Segis Pietertje Prospect 221846, with a record of 37,381 pounds of milk.

A better knowledge of how to feed intelligently has been noted. Through scientific investigations there has come to light the fact that minerals—especially lime and phosphorus—in the ration of dairy cows are essential to high milk production. There has been an increase in the use of concentrates for dairy feeding and especially of ready mixed feeds.

Market Milk.—The per capita consumption of milk at the present time is 55 gallons annually. Good, clean milk can now be obtained in almost every large city in the land, through better methods of processing and through more modern equipment.

More milk is now being shipped to the big markets by tank trucks and railway tank cars. Market milk delivery also has improved through the consolidation of many of the smaller companies into one large marketing organization. In many of the sections the final organization has taken the form of a coöperative association. Coöperative bargaining by the producers to sell their milk to better advantage has also been developed.

Dairy Products.—The amount of butter consumed per person in 1924 was 17¼ pounds as compared with 17 pounds in the previous year and about 15 pounds in 1920. Butter prices for the last year have remained very high. The manufacture of sweet-cream butter is gaining ground. Many large creameries are specializing in this product because of its good keeping qualities and its uniformity.

The per capita consumption of cheese in 1924 was 4.2 pounds as compared with 3.9 pounds the previous year and 3.5 pounds in 1920. Swiss cheese made from milk that has been clarified and made with the use of a special culture is now being manufactured in many of the large plants.

In both the butter and the cheese industry Federal inspection has been inaugurated, so that many large city governments and Federal institutions now buy these products on Federal inspection. *The Federal Market News*

Service, which was established in 1919, is an aid not only to the butter and cheese industries but to market milk industries in general.

The use of powdered skim milk and powdered buttermilk by-products of the butter industry is increasing, the former for baking purposes and the latter for feeding hogs and poultry. Three factories have been built to manufacture casein plastics.

The ice-cream production was slightly higher in 1925 than in 1924 when the per capita consumption was 2.5 gallons. Pasteurization and homogenization of the entire mix are now generally used.

In the field of manufacturing and marketing of dairy products, the development of enormous organizations for the manufacture and sale of dairy products should be noted.

FARM MACHINERY AND PROGRESS

By J. D. Davidson
Professor at Iowa State College

Period of Development.—The progress of American Agriculture has been due in a large measure to the development and use of farm machinery. Not only is the average farm worker now able, through the aid of machinery, to produce three times the quantity of agricultural commodities that he did seventy-five years ago, but much of the drudgery connected with farm operations has been eliminated and the general conditions surrounding farm labor have been improved. The greatest activity in the development and use of farm machinery came in the period immediately following the Civil War, when the expansion of farm land and the increased demand for food, furnished the stimulus. The present era is another important period of development, when the urge for a more extended use of machinery comes from an effort to reduce the cost of production through the more efficient use of labor. For labor is one of the largest items in farm operating costs.

Farm Machinery.—The development of farm machinery is, however, a gradual process, and new inventions or new machines cannot be put into immediate use. A quarter of a century was required to develop the reaper and secure the general use of harvesting machinery. For this reason it is difficult to point out great changes in attempting to record the progress of any one year.

A considerable advance was made during 1925 in the progress of substitution of the power of the internal-combustion motor in the form of the gas tractor for animal motors or horses and mules. It is now clearly recognized that the comparative energy-cost of power with the prevailing prices of petroleum fuels and horse feed is decidedly in favor of the internal-combustion motor. However, the more rapid substitution of mechanical power for animal labor has been delayed through inability to adapt the tractor to all kinds of farm power requirements, particularly in the growing of row crops. Rapid progress has been made recently in the development of a universal tractor not only adapted to the preparation of the seed bed but also to the planting, the cultivating, and the harvesting of row or intertilled crops. A limited number of these tractors were manufactured during the year 1925 and were used with good results.

Horse Power and Tractor Power.—In the wheat growing sections, particularly those with limited rainfall and low crop yields, the practice has grown of using larger teams of six, eight, twelve or more work animals. This practice economizes labor and with skillful management can be followed without detriment to the quality of the work performed.

A notable improvement in the application of the power of tractors has been made in the "power take-off" which transmits the power of the motor direct to those field machines requiring rotary motion. The use of the power-take-off gives a much higher efficiency in the transmission of the power required over the practice of transmitting all the power through the drawbar, with encumbent serious losses in the transmissions of the tractor and the machine. Field corn huskers and combined harvester-threshers are examples of machines operated in this manner.

Electric Power.—During the past year a national program for the study of the application of electricity to agriculture was culminated by a committee of allied interests, styled the Committee on the Relation of Electricity to Agriculture. This committee has been responsible for the forming of seventeen state organizations, created for the purpose of studying the problems connected with the use of electricity in agriculture. Many of these state organizations include rural communities for electrical development in which experiments in the use of electricity are conducted, and research problems are developed for public and commercial laboratories to solve. The Committee on the Relation of Electricity to Agriculture is an outstanding example of coöperation among industries to solve their mutual problems. The chairman of the committee is O. E. Bradfute, President of the American Farm Bureau Federation. The secretary is C. G. Neff, of the National Electric Light Association, and the managing director is E. A. White.

The combined harvester-thresher, a machine for the threshing of grain from the standing stalk, has been used for many years on the Pacific coast where the harvest-season is almost entirely free from rain. During the past few years this machine has been introduced extensively in the wheat-growing regions of Kansas, Nebraska, and adjoining states where a limited rainfall prevails. This machine materially reduces the cost of small grain growing. Experiments are being conducted in the artificial drying of grain by the forcing of a current of warm air through it after it has been placed in the bin. If this practice of drying grain can be successfully developed, the use of the combined harvester-thresher may be extended into the humid sections of the country.

The field corn husker, although a machine which has been under development for a period of more than twenty years, was purchased by farmers of the corn belt the past year in larger numbers than ever before. This machine more than doubles the amount of corn gathered by each man connected with its operation, and with favorable conditions of yield, soil and weather, reduces the cost of harvesting the corn crop.

Attachments for Tractors.—A large number of machines in the form of attachments for tractors are under development and are being put into successful operation. These machines provide better opportunity for control than separate machines do with a consequent saving of labor. A notable example of this type of machine is the ensilage harvester, which, when attached to, and driven by a tractor, will cut standing corn into ensilage and elevate it into a wagon drawn beside the machine.

Experimental machines cast their shadow before. At the Iowa State College an automatic or "manless" plow has been built, which has performed well in trials without the continuous attention of an operator. The plow is manually guided for an initial furrow and is self controlled thereafter. The tractor has right and left hand plows which are used alternately as the machine moves back and forth across the field, shuttle style, the direction of travel being reversed by the contact of antennæ with a fence or other barrier.

Mr. Arthur J. Mason of Illinois has built an artificial hay-curing plant and has developed a method of harvesting which eliminates all hand labor. The process is quite independent of the weather conditions. The saving of labor and the high quality of hay produced makes the method worthy of careful consideration.

DISEASES OF PLANTS

By R. J. Haskell
Associate Pathologist, Department of Agriculture

The growing season of 1925 was marked by periods of dry weather and extreme drouth in some areas. This deficiency in rainfall was unfavorable for many plant diseases, with the result that, in general, losses from this cause were unusually slight.

Cereal and Forage Crops.—Stem rust of wheat was more destructive than in 1924, but less so than in 1923. Although only slight injury was sustained by winter wheat, heavy losses resulted to spring wheat in Minnesota and the eastern Dakotas. It was of slight importance on oats and barley, and on rye it was practically negligible. The barberry eradication campaign was continued.

Bunt of wheat was unusually damaging in Pennsylvania, Maryland, Virginia and certain other states. The copper carbonate dust treatment for bunt control was the subject of several papers of the year. This chemical is now widely employed as a wheat seed disinfectant. In an extensive series of experiments conducted in the Pacific Coast States and extending over two years, Tisdale, Martin, and others (U. S. Dept. Agr. Bul. 1299) have determined the relative resistance to bunt of the commercial wheats in the United States. Tisdale and Tapke (Phytopath. 15: 59) demonstrated for the first time that infection by loose smut of barley could occur from spores on the seed.

Powdery mildew of red clover was common again this year. Its control with sulfur dust was reported from Oregon. A new bacterial wilt and rootrot of alfalfa has been described by F. R. Jones (Phytopath. 15: 243-244). A new Cladosporium spot of cowpea was reported by Gardner (Phytopath. 15: 453-457).

Field and Vegetable Crops.—That *Alternaria solani* can produce a rot of potato tubers as well as a blight of the vines has been shown by Folsom and Bonde (Phytopath. 15: 49). Working with potato blackleg, Leach (Science 61: 120) has produced evidence to show that the seed-corn maggot is a common agent of dissemination and inoculation of the blackleg bacillus and that the organism may overwinter in the body of this insect.

The white rot of onion (*Sclerotium cepivorum*), a new disease in this country, recurred in the Norfolk section of Virginia and was found for the first time in Kentucky. J. C. Walker (Jour. Agr. Res. 30: 365) has reported a new mycelial neck rot of onion caused by *Botrytis* sp., and has shown that artificial curing of the onion bulbs within two or three weeks after harvest has greatly reduced losses.

F. R. Jones and Drechsler (Jour. Agr. Res. 30: 293) described *Aphanomyces euteiches* as the most important cause of rootrot of peas in the United States.

Fruits.—In general fruit diseases were subnormal in prevalence but blight of apples and pears (*Bacillus amylovrus*) was bad in many states.

A new apple disease, perennial canker (*Gloeosporium perennans*), occurring in the Pacific Northwest, has been described by Zeller and Childs (Oregon Exp. Sta. Bul. 217). In an investigation of much significance to the nursery industry, Riker and Keitt (Science 62: 184) have reported that much of the so-called crowngall of apples is in reality not crowngall but overgrowths induced by other causes, especially imperfect union of stock and scion.

The disinfection of citrus fruits with borax solution to prevent bluemold rot was practiced more widely in California and Florida following recent experiments in its use.

A discovery of importance to those owning cocoanut trees in Florida is the finding for the first time in that state of the destructive budrot caused by *Phytophthora faberi*.

The Mosaic Diseases.—Much attention was given during the year to the mosaic problem. A general review of the present situation has recently been published by McKinney (Phytopath. 15: 189-202). His investigations (U. S. Dept. Agr. Bul. 1361) also have indicated that foliage mottling and rosette of wheat are different manifestations of a single transmissible mosaic, and that the causal agent overwinters in the soil. Johnson (Wisconsin Res. Bul. 63) has produced an infectious mosaic of at least two different types in tobacco by inoculating with extracts from apparently healthy potato plants, and concludes that most potato varieties uniformly possess the power of inducing mosaic in tobacco and other Solanaceous plants. A significant piece of work is that of Olitsky (Jour. Exper. Med. 41), who apparently succeeded in propagating the causal agent of tomato mosaic on an artificial medium. He concludes that the incitant of tomato mosaic is a living microbic body. On the other hand Mulvania (Science 62: 37) has been unable to confirm Olitsky's results and he suggests that more evidence is needed in order to establish the facts.

Plant Quarantine Measures.—Three public hearings of the Federal Horticultural Board were held for the purpose of considering quarantine action on account of plant diseases. The first, held June 30, was to consider the advisability of amending the existing quarantines on account of white pine blister rust. The second, and probably most important of the three, was called by Secretary Jardine November 16-17 to afford opportunity for full reconsideration of the restrictions governing the entry of narcissus and certain other bulbs, authorized to become effective January 1, 1926. These restrictions have been the subject of wide discussion both favorable and adverse and so a thorough review of the subject seemed advisable. The third, held December 8, was to consider the advisability of prohibiting the importation of wheat from certain additional countries where flag smut is now known to occur, and further to consider the removal of restrictions imposed by Quarantine 39 on account of take-all, since this disease is now known to occur widely in the United States. No action on any of these three matters has been announced to date (December 12).

Meetings.—In addition to its regular annual meeting at Washington, December 30, 1924, to January 1, 1925, and at Kansas City, December 29-31, 1925, the American Phytopathological Society held two summer field meetings. One was a cereal disease conference in Iowa, Minnesota, and North Dakota, July 8-14. The other was a Western meeting in conjunction with the Pacific Division of the Society held at Corvallis, Oregon, June 22-24. A summer meeting of plant pathologists was also held at Quebec, Canada, during the last week in July.

DISEASES AND PESTS OF ANIMALS

By J. R. Mohler

Chief of the U. S. Bureau of Animal Industry

Conditions.—According to the latest good estimates, there are on the farms of this country approximately 17½ million horses, 5½ million mules, 65 million cattle, 39½ million sheep, and 54½ million hogs, valued at over five billion dollars. In addition to the animals on farms, there are in the United States over two million head each of cattle, swine, horses, and mules, and about one half a million sheep. This vast animal population gives the United States first rank among the stock-producing nations of the world and we may justly be proud of our 8-billion-dollar live-stock industry. It equals in value our combined iron and steel industries and is more than twice as large as our lumber industry. But it is not only the magnitude of the industry that gives us cause for pride; we are producing purebred stock that compares very favorably with the best animals bred in countries much older than ours. This gradual improvement of our purebred stock is being reflected to our livestock in general, as more and better-grade stock is being produced.

With the increase in the value of livestock, responsibilities of livestock sanitarians in protecting the industry are becoming greater and more varied in character. At the same time conditions are developing which make their work more difficult. The increase in number and growth of towns and cities leads to the concentration of animals, especially dairy cattle, with the result that many are kept in insanitary places and deprived of exercise and freedom while they are being fed heavily for increased milk production. Such conditions are conducive to the rapid spread of disease and pests, and as they also decrease the vitality of animals, disease becomes correspondingly more destructive.

The space allotted will permit only of a brief discussion of some of these most destructive diseases and pests of livestock in the United States.

Tuberculosis.—Perhaps none of the diseases of domestic animals takes such a heavy toll as does tuberculosis, and since in animals it constitutes a source of danger to humans, it becomes from that fact also one of the most serious. It is a slowly developing disease and may be harbored in a herd without detection for a long time. In advanced cases of the disease the germs may be eliminated in the milk and, if not destroyed by pasteurization, retain their virulence in dairy products.

The annual losses from animal tuberculosis are estimated at about thirty-five to forty million dollars. Federal authorities are now engaged in a project in coöperation with State, county, and other local agencies to eradicate animal tuberculosis, and much progress has already been made. During the past year the combined State appropriations for this work amounted to about seven million dollars, and the Federal appropriation to about one-half that amount. The work has been a popular subject in the agricultural press and among farmers. A waiting list of 3,500,000 animals at the end of the year shows the desire among cattle owners to have their herds tested. More than seven million animals were tested during the year and 591 counties were engaged in systematic tuberculosis eradication. Since May, 1917, when the work was inaugurated, 78,805 herds, involving 1,357,619 cattle, have been accredited as free of tuberculosis. The total number under supervision is 1,231,692 herds containing 12,302,200 cattle.

Tick Fever.—Cattle fever ticks, the bane of livestock raising in the South, have been costing the industry from twenty to thirty million dollars annually. While southern cattle have acquired immunity to the disease in some degree, they do not thrive under tick conditions. The ticks, if allowed to reach a non-infested territory, produce the fever, which is a highly fatal malady to susceptible animals.

Tick eradication work was conducted during the last year in ten Southern States. Georgia was released entirely from Federal quarantine. Additional areas released from Federal quarantine included one or more counties in Arkansas, Florida, North Carolina, Oklahoma and Texas. The dipping season of 1924 resulted in the complete eradication of ticks from seventy-one counties that were heavily infested the preceding year. More than 25,000 dipping vats were in use.

Foot-and-Mouth Disease. — Early in the year 1924 foot-and-mouth disease appeared on the Pacific Coast. The United States had been free of this contagion since the outbreak of 1914. The work of the United States Bureau of Animal Industry in coöperation with State authorities kept the plague confined to sixteen counties in California. The customary method of slaughter and disinfection was used with effectiveness. The last appearance of the disease in domestic animals in that State occurred on April 5, 1925. The infection reached wild deer in the Stanislaus National Forest and the task of eradicating so virulent a plague from these animals in the mountains presented a new problem of great difficulty. A systematic campaign of eradication has apparently stamped out the disease among deer.

Late in September, 1924, before the California outbreak had been fully suppressed, the disease broke out in Texas. Investigation showed that infection in Texas probably entered through a Gulf port, there being no apparent connection with the outbreak in California. A force of inspectors from the U. S. Bureau of Animal Industry was immediately sent to the infected region to coöperate with State authorities and in thirty days the last known diseased herd had been destroyed. Again on July 30, 1925, the disease appeared in Texas on the same premises and immediate action was taken to eradicate the second outbreak in that section.

Early in May, 1925, the U. S. Department of Agriculture sent a commission composed of three scientists to Europe to make prolonged studies of foot-and-mouth disease with the object of acquiring further knowledge concerning modes of infection, possible means of immunization, and new ways of handling outbreaks of the plague.

Scabies.—The situation during the past year pertaining to scabies of cattle and sheep showed a measure of improvement. Outbreaks occurred in Arizona and, owing to prolonged drought in this State, eradication work was greatly hampered. There was also a slight increase of scabies in Kansas, Nebraska and South Dakota, but in other sections, especially Texas, Montana and Wyoming, conditions were greatly improved.

During the year Federal employees in coöperation with State authorities made 3,409,439 inspections of cattle and supervised 1,121,459 dippings in the field. They also inspected 24,953,861 sheep and supervised 4,071,375 dippings. Infection was found to be 15 per cent. less in sheep than in the preceding year.

Hog Cholera.—At no time since records have been kept on the subject has the death rate in swine from hog cholera been so low as in the past year. The disease was at a low ebb throughout the entire year, only 30 out of every 1,000 hogs on farms being lost from cholera compared with 130 in 1897 and 106 in 1914. Nevertheless, the monetary loss to farmers from hog cholera for the year ended April 30, 1925, was upward of $20,000,000, showing that the disease is still a menace to the swine industry.

A disturbing factor in the situation is the fact that in many localities farmers have assumed an attitude of false security and since the disease is not rampant they fail to keep the swine herds immunized or to follow other precautionary methods to prevent the introduction of infection. Under such conditions cholera may spread rapidly and heavy losses occur before outbreaks could be checked. Hence, the necessity for a close watch on the situation. During the year the U. S. Bureau of Animal Industry coöperated with thirty-two states in controling this disease.

Infectious Abortion. — Infectious abortion is causing yearly losses estimated at about 20 to 30 million dollars. The U. S. Department of Agriculture is coöperating with State laboratories in conducting agglutination and complement-fixation experiments looking to the development of uniform methods of applying laboratory tests.

Studies to determine the practicability of immunization against infectious abortion were continued by scientific institutions, especially to determine whether the use of living organisms of the disease would produce immunity when injected into virgin heifers. Other experimental work was directed toward overcoming Bacterium abortus infection of the udders of cows by the use of abortion bacterin, and also by inflation of the udders with chloroform fumes. Very favorable results have been obtained through the use of simple control measures in privately maintained herds.

Anthrax.—While losses from anthrax are not as serious as from some of the more prevalent diseases, it is one to be considered, since it still destroys about $2,000,000 worth of domestic animals each year and because of the fact that the infection is transmissible to man. The disease is reproduced through spores which are very resistant to climatic changes and survive for a long time in stagnant pools and marshy places of infected pastures where susceptible animals pick up the infection. Outbreaks of the disease are localized as a rule. The disease is most prevalent in the States bordering on the Gulf of Mexico.

The chief method of protection against anthrax is by vaccination with one of the immunizing agents now on the market. Animals which have died of the disease should be burned or buried deeply after covering the carcass with unslacked lime.

Parasites.—Parasitic diseases of livestock, other than infestation with cattle ticks (Texas fever), and mange or scabies, already discussed, include such important affections as the stomach worm infestations of sheep and cattle, the ascarid infestations of swine, cattle, horses and dogs; hookworm infestation of sheep, cattle and dogs; lungworm disease of cattle, sheep and horses; kidney worm infestation in swine; trichinosis of swine; nodular disease of sheep, cattle, and swine; liver fluke disease of sheep and cattle; gapes in poultry; blackhead in turkeys; ox warbles in cattle; various louse infestations, and numerous other parasitic diseases and conditions known to be of some importance but not yet adequately studied.

The damage from parasites is known to mount into millions of dollars yearly, but it is very difficult to estimate losses from parasites since much of the loss is in terms of lessened production of beef, mutton, pork, and wool, in damaged cow hides, and in the uninvestigated and unreported deaths of young animals. Control measures for the protection of young animals from parasites have been especially successful and profitable. These measures include the swine sanitation system developed by the U. S. Bureau of Animal Industry in McLean County, Illinois; the routine treatment of lambs for stomach worms; and the prevention of gapeworms by avoidance of areas used by turkeys, in raising chicks. Parasites are especially prevalent in the South and control measures must be established there before a profitable and extensive livestock industry will be possible in that section.

According to the best information available, it is estimated that the diseases discussed, along with lesser ones, such as hemorrhagic septicemia, blackleg, dourine, glanders, influenza and wounds, cause annual losses in domestic herds of the United States to the extent of approximately $200,000,000.

HORTICULTURE

By William A. Taylor

Chief of the Bureau of Plant Industry

Expansion.—Horticulture in America has broadened from the home garden and farm orchard beginnings of the early days to a group of undertakings widely varied in character, scattered in geographic location and divergent in climatic requirements. While there is extensive production of many flowers, vegetables and small fruits relatively near the large centers of population in most parts of the country, the trend of development along numerous lines, especially with fruits and vegetables, has been toward the centralization of production of these crops in sections where they can be grown satisfactorily as to yield and quality without much regard to distance from consuming centers.

Regional Culture.—The centralization of orange and grape-fruit production in Florida and of orange, lemon, and to a less extent grapefruit production in California; the growing of peaches for shipment north in the fresh state in Georgia and North Carolina are well known examples of this. The steady enlargement of winter apple production in western New York, the Pacific Northwest and in the mountain region of Pennsylvania, western Maryland and the great valley of Virginia and West Virginia are even more conspicuous when it is remembered that the apple succeeds at least fairly well in a large part of the country east of the Great Plains and north of the Gulf States.

These extensive regional developments of rather intensive, specialized production are in some cases due to the exacting character of the crops grown—as with the citrus fruits and the figs, olives and old world grapes of California, and the large-scale, out-of-season production of tomatoes, eggplant, celery, lettuce, potatoes, watermelons, muskmelons, etc., of the Florida, Gulf and South Atlantic States—and the similar extensive growth of Bermuda onions in Texas, and lettuce in the Imperial and other Valleys of the Pacific Coast and Rocky Mountain Regions.

Similar regional concentration of production occurs, however, with such staple perishables as peaches, native grapes, potatoes, cabbage, tomatoes, asparagus, etc., which are largely consumed in the regions where grown, but at long distances from the centers of production.

Transportation.—This scattered development of production, which renders North American commercial horticulture unique in comparison with that of the rest of the world, is due in large degree to the land transportation facilities afforded by the railroads, including the refrigerator car service, for but little of the perishable freight is water borne. For nearly a half century it has grown by leaps and bounds, notwithstanding the heavy transportation and refrigeration charges involved. Whether this trend will continue or gradually be replaced by enlarged production nearer and accessible to the consuming centers through motor truck transportation, as some believe, is one of the economic problems requiring solution during the next twenty-five years.

Apples and Pears.—An outstanding feature of American Horticulture in 1925 was the practically universal good yield and satisfactory quality of the apple and pear crops. Not for many seasons has there been a fair to good crop of these in all the important producing sections. While not attaining so large a total of merchantable fruit as in 1923, when 35,936,000 barrels were harvested, the apple crop (estimated in November at 31,312,000 barrels) was larger than the five year average, and largely composed of clean fruit of good size in all the leading production districts, when in most years there is partial or even total failure of the crop in some. The winter crop moved from the trees to market and into storage at prices which should render the fruit available to all classes of consumers throughout the winter.

Grapes.—The shipments of California grapes to eastern markets in the fresh state were unprecedentedly large. Early in December it appeared likely to exceed 72,000 carloads, in comparison with a total of 57,320 cars in 1924 and 55,000 cars in 1923. While this increased movement was in part due to the demand for table grapes to make up for the crop shortage in eastern producing districts, such as New York, Pennsylvania and Michigan, it obviously was largely due to increasing demand in eastern population centers for grapes for juice extraction for home use. In place of the former extensive production of wine and brandy in California, grapes are being moved by trainloads to eastern cities for domestic beverage production. The extent to which this continues will profoundly affect the future of the viticultural industry of the Pacific Coast.

Potatoes.—The sharply reduced total production of potatoes, due in part to the reduction of acreage as a result of the unsatisfactory returns to growers of this crop during the past two seasons, but still more to the unusually dry weather of June and July in the northern producing districts which cut the set and reduced the size of tubers. Unseasonably early freezes and snow in October caught considerable portions of the crop undug in the northern states. This threatened still further reduction of the available supply and developed a panicky condition in the market during October which forced wholesale prices to unprecedentedly high points from which they had gradually receded by the end of the year, though still remaining three or four times the prices of the preceding year.

The total crop of the year was estimated in November at 346,503,000 bushels, the December estimate of the crop of 1924 having been 454,784,000 bushels. The high prices stimulated imports from the Canadian provinces which appeared likely to exceed those of any recent year, notwithstanding the duty rate of fifty cents per cwt. on imported potatoes and the relatively light crop in Canada.

Floriculture.—In the field of floriculture the outstanding feature of the year was the enlargement of bulb planting for propagation, rather than for the production of flowers. While covering a wide range of species, such as tulips and several of the lilies, it was most extensive in the case of narcissus due to the imminence of the quarantine order of the Department of Agriculture in 1922, effective January 1, 1926, under which narcissus and some minor bulbs would be excluded from entering the country, except under exacting conditions of treatment for control of pests carried by such bulbs.

Information furnished by the bulb planters in connection with a conference on the quarantine matter held by the Secretary of Agriculture in November developed that plantings of narcissus in this country for propagation now total more than 1,400 acres, comprising more than 140,000,000 bulbs, including a very wide range of types and varieties.

FORESTRY

BY HENRY S. GRAVES

DEAN, YALE UNIVERSITY SCHOOL OF FORESTRY

Present Situation in Forestry.—Soon after the war a new movement of forestry was initiated with a view not only to extending the system of public forests but also to bringing about a better handling of private forests. This movement has made very substantial headway because the consequences of forest depletion have already begun to be felt in increased prices of lumber and wood products generally. Moreover, people are now beginning to realize the value of well-managed forests in protecting the sources of water supplies, in preventing erosion, in maintaining local industries that give an industrial vitality to rural districts, in furnishing a refuge for wild life, and for the service of forests as recreation grounds.

It is disconcerting to learn that the last great source of virgin timber in the East is confined to the far South and that the timber back of the larger mills will for the most part be removed within about a decade. Lumber prices have risen, in part because of higher labor costs, but in large part also on account of the increase of freight charges due to the recession of the forest supplies. More and more we are bringing into our eastern markets lumber from the Pacific coast. In 1924 the Northeast consumed about a billion and a half board-feet of Pacific lumber. The annual freight bill for transporting lumber now amounts to over $250,000,000 for the nation as a whole.

Seventy-five per cent. of the remaining virgin timber is west of the great plains and over half of it is located in the three Pacific states. Half of the lumber placed on the market each year is consumed in the region east of the Mississippi and north of the Ohio and Potomac rivers where there is almost no virgin timber left. Most of the lumber used in the country is still drawn from the virgin stands. Fully 70 per cent. of it comes from trees 150 years or more of age.

Unfortunately the timber has not been cut with a view to forest replacement. Succeeding stands are not such as might have been secured by the use of wholly practical methods of forestry. Many of the new stands have been injured by fire; they are inferior in density and grade and of relatively low growth and yield. Thus we find ourselves in the predicament of using and destroying our timber resources four times as fast as we are replacing them by growth. Softwood saw-timber is being removed eight and one-half times as fast as it is being grown, and of course the soft woods constitute our chief general utility material. We are actually burning up each year by forest fires about seven and a quarter billion board-feet of standing timber. In 1924 there were about 92,000 forest fires in the country that burned over some 29,000,000 acres of forest land.

It is the foregoing facts that have impressed the country with the need of some effective action to check further destructive agencies and to reduce the net drain on our forest capital. There is a very lively interest in the problem all over the country that is beginning to reflect itself in federal and state legislation and to some extent in efforts by private individuals to introduce better methods in the handling of their forest properties.

Federal Forestry Law.—The most important recent event has been the passage of the so-called Clarke-MacNary law by Congress on June 7, 1924. This act is directed primarily to the problem of private forestry. It is designed first of all to remove some of the most serious obstacles in the way of good forest management by private owners. First of all it sets up as an objective an annual expenditure of $2,500,000 for coöperation in the protection of forests from fire, chiefly on private lands. The actual appropriation for this purpose for the years 1925-26 made at the last session of Congress was $635,000. This money is made available for expenditure in such states as have an organized system of fire protection and which appropriate an amount at least equal to the federal allotment. In 1925 thirty states proved themselves qualified to receive this coöperation and they have themselves appropriated for the year altogether over $2,000,000, while private owners expended an additional sum of $2,000,000. This total of $4,635,000, including the federal funds, is in contrast to the sum of about $8,000,000 which is estimated as really needed to secure a reasonable protection of fire on the private lands of the country.

The Clarke-MacNary law provides further for a coöperative study of the problem of taxation of forest lands, designed to bring about a system of taxation which will not tend to discourage the growing of timber as is the case with the present general property tax. Other items in the law provide for extension work in forestry with farmers who own woodlots, for assistance in planting trees, for broadening the authority of the Government in purchasing lands for national forest purposes, and there are various other provisions not necessary to mention in detail in this article.

Government Forests.—One of the essential features of a national forest policy is the public forest. The National Forests now comprise some 157,000,000 acres of land. This includes about 2,000,000 acres of land purchased in the White Mountains of New Hampshire and Maine and in the southern Appalachians, under the authority of the Weeks law passed by Congress in 1911. It is of great importance to extend the system of National Forests to round out the purchase of areas where lands have already been acquired and to establish new units in the great timber belts of the Lake States and the southern pine region. The last Congress appropriated one million dollars for this purpose. It is very urgent to enlarge the funds available for this purpose. The National Forest Reservation Commission which approves all federal purchases of National Forest land has urged that the annual appropriations be increased to three million dollars.

Distinct progress has been made in the handling of the National Forests. The past year has seen a marked improvement in fire prevention, in spite of serious weather conditions. The development of airplane patrol has been a factor in the improved protective work, made possible by coöperation with the army and by a direct appropriation of $50,000. The local service of the National Forests continues to increase. About one billion feet of timber is now cut each year under forestry principles. Most of the reproduction is by natural means, but over 7,000 acres of formerly denuded lands are planted each year with thrifty forest trees. The forage on the forests is utilized under a system of regulated grazing, the total number of livestock thus allowed on the public property aggregating over eight million head. Each year an increasing number of persons use the forests for recreation. In 1923-24 the number of visitors had mounted to over ten million. The National Forests are now practically self-supporting as far as operating expenses are concerned. The receipts for the year 1923-24 amounted to $5,251,903.

A feature of national forestry of interest is the placing of the various military reservations, acquired for the most part during the war, in the hands of the Forest Service for the administration of the forests. These are located in fifteen states and aggregate about 350,000 acres.

State Forests.—The forest problem will not by any means be solved by the existence of National Forests and by other activities of the federal government. The central government must take the lead, but there is also a responsibility on the part of the individual states both in the matter of public forests and in securing good forest management on private lands. We look to the states to build up a system of state forests which will supplement those owned by the government, to direct the work of organized fire protection, to educate the people to greater care in the use of forests, to coöperate with private owners, and generally to look after the forest interests within their borders.

There are now thirty-one states which have a central forest agency of some kind. The work in forestry that is being done by the individual states varies greatly in amount and efficiency. As yet only a few states are giving to forestry the support it should have and which in the light of its economic importance they can well afford to give. Pennsylvania and New York lead in nearly all phases of state forest work. Each has a system of state forests and a well organized fire-protective system; each is making excellent progress in education through their technical forest schools, in planting waste lands, in extension work with farmers, in experiment and research and in developing a popular sentiment in favor of forestry. Pennsylvania has an aggregate area of 1,300,000 acres set aside as state forests and the legislature in 1923 authorized the presentation to popular referendum of a constitutional amendment that will permit a bond issue of twenty-five million dollars to extend the public forests by purchase. In New York a bond issue has been approved for fifteen million dollars for the purchase of forest and park lands. Of this sum five million dollars will be devoted to the extension of the state forest preserves.

Other states which have inaugurated the policy of building up a system of public forests are New Hampshire, Vermont, Massachusetts, Connecticut, New Jersey, Maryland, Louisiana, Kentucky, West Virginia, Virginia, Ohio, Indiana, Michigan, Wisconsin, Minnesota, South Dakota, Idaho, Montana, Oregon and Washington. A number of other states have acquired some areas for park purposes, as for example, California, but have no state forests. Altogether the states own about 8,700,000 acres of forest land of which about 75 per cent. has been definitely organized for permanent administration for public forest purposes.

State Forestry.—The chief activities of most states are devoted to fire protection and popular education in forestry. Several have enacted new tax laws, generally based on the principle of an annual tax on the land itself and a yield tax on the timber collected at the time of cutting, this to be applicable to areas of second growth and plantations. For the most part these laws are defective and have not been very successful. The new study of forest taxation now being inaugurated by the government should result in more effective legislation in this matter.

There are still some states where practically nothing is being done in the way of forestry. On not less than 150 million acres of land almost no effort is made to prevent forest fires. The most serious situation is in the Southeast. In 1923 over half of the forest fires of the country occurred in this group of states. The most backward states are Florida, South Carolina, Mississippi, Georgia, Arkansas, Oklahoma and Missouri. None of these states is qualified to receive federal aid in fire protection. There appears, however, to be an increasing interest in forestry in this region. Georgia, on August 12, 1925, passed a law providing for a state board of forestry and authorizing the employment of a state forester, but the appropriation was only $3,000, a sum far too small to make an effective beginning of work. Considerable public sentiment has been aroused in Arkansas but not enough to secure the passage of a constructive measure in the last legislature. Missouri has also passed a forestry law providing for a central agency in charge of the state interests, but the appropriation was vetoed by the Governor. A new law has been passed in Oklahoma providing for a forestry commission and a small appropriation of $5,000 given for its work. Efforts have been made in South Carolina to secure legislation for a forestry commission, but so far without success.

Private Forestry.—The most serious aspect of the present situation is the small amount of land under private ownership that is being handled under effective forestry methods. Excellent progress is being made in fire protection. A great many lumber companies are coöperating in this undertaking. Relatively few are, however, cutting their timber with a view to forest replacement. Probably over 95 per cent. of the lumber on the general market has been cut without any conscious effort to secure a new crop of trees. About 80 per cent. of the productive forest land of the country is in private ownership. Even with the most ambitious program of public forests the bulk of our future timber supply must come from private lands. The public is taking the lead and is assisting private owners in fire protection and many other ways.

It is hoped that a more liberal and a sounder system of taxation will be devised to prevent discouragement of forestry through the fear of burdensome taxation. The time is at hand when we may expect a more effective handling of forests owned by private individuals and companies. This together with a larger program of public forests should lay the foundations for a future service from our forests that will make them of great value in the economy of the Nation.

FISHERIES

By Lewis Radcliffe

Acting Commissioner, U. S. Bureau of Fisheries

General.—At the present time about 195,000 persons are engaged in the fisheries of the United States and Alaska; the investment exceeds $209,000,000, and the annual harvest amounts to 2,800,000,000 pounds, for which the fishermen receive about $92,000,000. These fisheries are highly important as a source of protein food and of products valued in the arts and industries. With rapid growth in population and limits on our acreage of tillable land, the products of the sea and the water products produced by water farming—aquiculture—will be in even greater demand than now.

Following the Great War the fishing industry passed through a period of acute depression. This was followed by a rapid recovery. Recently there has been a slowing down of this recovery and while the volume of production is greater, prices have been somewhat lower.

Canned Fish.—About 65 per cent. of our total harvest consists of food products; the balance being manufactured into products used in the arts and industries. Our food fishery products are sold fresh, frozen, canned, salted, smoked and prepared in other ways. In 1924 our canned fishery products were valued at $72,000,000. Canned salmon packed in the Pacific States and Alaska ranked first, with an output of 300,171,691 pounds, valued at $42,401,602. Other canned fishery products were valued as follows: sardines, $12,636,599; tuna and tuna-like fishes, $5,756,586; shrimp, $4,608,950; oysters, $2,478,044; clams, $2,161,389, and miscellaneous fish and shellfish, $2,121,419.

Of the total salmon pack 254,155,920 pounds, valued at $33,007,135 are credited to Alaska and the balance of 46,015,776 pounds, valued at $9,394,467, to the Pacific States. The pack of sardines in Maine, including one plant in Massachusetts, amounted to 47,498,125 pounds, valued at $7,191,026, an increase of 49 per cent. in quantity and 36 per cent. in value over the production in 1923. The California sardine pack was 65,622,672 pounds, valued at $5,445,573. The production of canned tuna and tuna-like fishes in California was 31,315,968 pounds, valued at $5,756,586, a decrease of 20 per cent. in quantity and 17 per cent. in value. The production of shrimp packed in the South Atlantic and Gulf States was 10,777,755 pounds, and of canned oysters, packed from Maryland to Texas, 6,712,215 pounds.

Frozen Fish.—In 1924 the quantity of fish frozen was 97,324,144 pounds as compared with 91,548,643 pounds in 1923. The more important species frozen were halibut, 14,650,787 pounds; salmon, 14,309,666 pounds; ciscoes, 13,195,023 pounds; herring, 8,695,698 pounds; whiting, 7,528,339 pounds; and mackerel, 5,457,696 pounds.

Fishery By-products.—By-products of the fisheries were valued at $10,000,000 and included 9,211,295 gallons of fish and whale oil, valued at $4,311,733; 76,254 tons of scrap and meal (used for fertilizer and as a feed for hogs, cattle and poultry), valued at $2,865,901; and 219,211 tons of crushed oyster shells (used for poultry grit and lime), valued at $2,019,254. Miscellaneous by-products include such items as fish scales from which is prepared fish-scale essence. This is used in the manufacture of artificial pearls. Shark hides are also included. These are used in the manufacture of leather used for novelty purposes.

New England Vessel Fisheries.—The landings of fish by American fishing vessels at the ports of Boston and Gloucester, Mass., and Portland, Me., amounted to 7,475 trips, aggregating 182,948,194 pounds of fresh and salted fish, with a value of $6,992,952 to the fishermen, representing an increase of 4.6 per cent. in quantity and a decrease of 0.8 per cent. in value as compared with 1923. The catch of cod and related species exceeded 157,000,000 pounds and of mackerel 15,300,000 pounds. The development of the market for filleted haddock, cod, etc. has been very helpful to the fishing industry of this section. The fillets are usually hardened in brine, wrapped in parchment paper, packed in tin containers and shipped in boxes with ice surrounding the metal container. In this form the housewife is assured of a sanitary, ready-to-cook product.

Condition of the Fisheries.—Many factors have contributed to the depletion of our interior and littoral fisheries. These include pollution, deforestation, reclamation, and irrigation projects, power dams and other obstructions to the free movement of fishes to their natural spawning grounds. Good roads and the increased use of the automobile have made accessible the remote lakes and streams and the number of anglers has increased with amazing rapidity. In several states the number of licensed anglers approximates 200,000 or more and the catch of the seven million or more anglers in the United States has become an important factor in the drain upon the natural supply. Improved methods of handling and merchandising have enabled larger numbers of our people to obtain and enjoy fish as food. Such conditions have brought about a reaction along two major lines. First, there is a growing demand for the conduct of biological investigations which shall supply the basic facts upon which wise legislation in aid of fisheries must be founded; and secondly, there is a greatly augmented demand for the conduct of fish culture on a much larger scale, to keep our waters adequately stocked as a source of food and for recreational purposes.

While there is scant evidence of depletion of our major sea fisheries, the evidences of depletion in the North Sea and around Iceland reveal the importance of assembling facts regarding our own offshore fisheries which will enable us to detect evidences of depletion before the capital stock is seriously endangered.

Biological Investigations. — Our people depend in large measure upon the Federal Bureau of Fisheries for the conduct of biological investigations. Its present program includes studies aimed to help in conserving and developing such important fisheries as those for salmon and halibut in the Pacific coast waters; the whitefishes and ciscoes of the Great Lakes; the mackerel, cod, haddock, and pollock of the North Atlantic; the blue crab of the Chesapeake Bay region; the mullet of the South Atlantic and Gulf coasts and the fresh-water mussel fishery of the Mississippi drainage which serves as the basis for the important pearl-button industry.

PERSONS, INVESTMENT, AND PRODUCTS OF THE FISHERIES BY GEOGRAPHICAL SECTIONS

Sections	Number of Persons Engaged	Capital Invested	Products	
			Pounds	Value
New England States (1919)	30,767	40,597,097	467,339,870	$19,838,657
Middle Atlantic States (1920 and 1921)*	55,244	38,774,431	863,681,626	24,407,785
South Atlantic States (1923)	16,298	8,505,225	228,747,930	5,087,340
Gulf States (1923)	17,793	10,535,905	160,324,042	8,096,650
Pacific Coast States (1922)	22,270	28,651,490	282,968,421	12,983,583
Mississippi River Division (1922)	19,122	7,345,034	105,733,734	4,503,521
Great Lakes (1922)	8,039	12,046,458	108,732,443	6,689,611
Lake of the Woods and Rainy Lake (1922)	123	139,955	1,677,999	110,022
Alaska (1924)	25,194	62,660,637	583,425,000	10,400,000
Total various years (1918-1924)	194,850	209,256,232	2,802,373,838	$92,117,169

* Maryland and Virginia for 1920; other states, 1921.

Aquiculture.—For many years the Federal Government has artificially propagated many of our important food and game fishes on a very large scale, and especially in the case of our interior fisheries, has done much to offset the damage resulting from industrialization, in keeping these waters stocked with fish. In addition, important contributions have been made through the acclimatization of fishes. In this manner valuable fisheries for shad and striped bass have been built up in the Pacific States. The greater part of the eggs collected in fish-cultural work are secured from fish caught for market, which would otherwise be wasted.

The output of food and game fishes in the fiscal year 1925 exceeded 5,360,000,000. Winter flounder ranked first with 2,640,000,000, and cod second with more than one billion. These were propagated in the New England district. Pike perches, valuable food fishes of the Great Lakes section, were third with 238,000,000. The output of salmon exceeded 133,000,000; trouts, 92,000,000, and basses and sunfishes, 34,000,000. More than 167,000,000 fish eggs were allotted to State and Territorial fish commissions and 1,125,000 to foreign countries and the Canal Zone. More than 62,000,000 fish were salvaged from the overflowed lands along the Mississippi River, and before releasing these fish they were innoculated with 1,780,000,000 larval fresh-water mussels, thus contributing to the maintenance of supply of mussels. In addition to the work of the Federal Government, the States are now giving much greater attention to propagation and stocking of streams. During the past year greater progress has been made in North Carolina than in any other State.

The most important branch of commercial aquiculture in the United States is oyster farming. Our production of market oysters decreased from 25,000,000 bushels to 17,000,000 bushels in the decade beginning with 1912. In large measure this has been due to the depletion of the natural beds. For the restoration of this important industry we must depend primarily on oyster farming.

Survey of Wholesale Fresh and Frozen Fish Trade of New York.—New York City handles a larger volume of fresh and frozen fish and a greater variety of fishery products than any city in the United States. According to a recent survey, in 1924, eighty-seven wholesale establishments handled 394,000,000 pounds or in excess of 19,000 carloads of fresh and frozen fish, representing more than one hundred varieties. The wholesale value of these products approximated $40,000,000, and the investment exceeded $2,500,000. Direct landings by fishermen exceeded 50,000,000 pounds, chiefly cod, haddock, flounder, and mackerel. The per capita consumption of fresh and frozen fish in the Metropolitan Area was nearly thirty-two pounds per annum.

MARKETING

By A. W. McKay

Marketing Economist, Department of Agriculture

Problems.—The marketing of agricultural products presents a number of problems that in one phase or another are perennial. The growth of specialized producing areas, usually remote from consuming centers, has brought to the foreground problems of assembling, grading, processing, storing and transporting farm products economically and efficiently. The services demanded by consumers and the multiplicity of agencies that have arisen to perform these services have added to the cost of marketing. Some authorities claim that the farmer, on the average, receives no more than one-third of the consumer's dollar. One explanation of this is the small quantities and wide variety of food products which are bought by the average consumer.

Complaints.—A circular published in April, 1925, by the Port of New York Authority, states that the average purchase of lettuce is one head, or 1/7680 of a carload. Considering retail services only, it costs not far from $100 to sell and deliver a carload of lettuce in the 7680 lots in which it is sold at retail. The costs of the agencies that handle farm products between the producer and consumer, therefore, have been subject to serious consideration. The high cost of labor and material during recent years has increased the seriousness of the problem. Out of the consideration given to the subject some improvements and economies have been effected. It remains true, however, that there is little prospect of reducing the number of marketing services required and that the people who perform these services must be remunerated.

Costs of distribution have been increased by antiquated and inadequate terminal facilities in the large cities. Our cities in many cases have outgrown the railroad yards, warehouses and wholesale districts which were adequate 15 or 20 years ago. According to the publication quoted, it costs 42 cents to haul a 150-pound sack of Michigan potatoes 1120 miles to the terminal yards in Jersey City and 62 cents to haul the same sack to the store of the retailer, less than 15 miles, on the average, from the yards. Of the price the consumer in New York pays for Northwestern Winesap apples, 56.2 per cent. represents the cost of distribution within the city.

Fluctuations.—Furthermore, variations in yields and changes in general economic conditions have caused some violent fluctuations in the prices of farm products and have been responsible for heavy losses to the producers. The inflation of land values, high prices of labor, machinery, fertilizer and other supplies since the World War have made this situation all the more acute. Efforts to improve the situation by improving marketing conditions have been directed mainly toward raising and stabilizing prices of farm products.

Factors.—A brief discussion of the subject can deal only with the more important elements of the situation and the outstanding developments. Inasmuch as the marketing situation has changed since the appearance of the *American Year Book* of 1919, it is necessary, to some extent, to consider the subsequent period.

The outstanding factors in the marketing situation at the present time are (1) the development of coöperative marketing associations, (2) a realization of the close relationship between production and marketing, (3) the adoption of standard grades for many agricultural products, (4) efforts to bring about better methods of financing the marketing and production of farm crops and (5) the proposal of various plans for disposing of surpluses of agricultural products.

Coöperative Marketing Developments.—The shipping-point value of farm products sold coöperatively during 1925 was approximately $2,500,000,000. There are, in round numbers, 12,000 marketing associations in the United States at the present time, and 2,200,000 coöperating farmers, about one-third of all farmers in the United States. Approximately one-third of the coöperative business is handled by 100 large coöperative organizations, many of which have been formed within the last five years.

Agricultural coöperative associations are organizations of farmers formed for the purpose of performing marketing or other services at cost. Invested capital receives a return equivalent to a fair rate of interest, but no more. Profits or savings are returned to the members in proportion to their patronage. Control is vested in the members either in accordance with the one-man one-vote principle, or in proportion to patronage.

Whatever the future possibilities of coöperation in agriculture may be, its present accomplishments are important, though perhaps not susceptible to statistical measurement. It may be said, at the outset, that the coöperative leaders generally have abandoned the claim that a coöperative organization can secure immediately better prices for its members than can be obtained by farmers outside the organization. Coöperation, if it influences the price the farmer receives for his products, benefits the non-member as well as the member for the reason that private dealers usually are able to meet the competition of the coöperative.

However, it must be set down as the first achievement of coöperation that it introduces a new element of competition, and induces competing dealers to handle farm products on a smaller margin. Coöperation, also, has exerted an important influence in raising and stabilizing the grade and quality of farm products. The organized producers soon learn that their big opportunity to secure better prices than their unorganized neighbors lies in offering better products, uniformly graded and dependable in every respect. Standardization is one of the outstanding achievements of successful coöperative organizations. It has an effect on production practices. Undesirable varieties of fruit are eliminated, for example, and spraying, fertilization and cultural practices are improved in order to produce larger quantities of the desirable grades. It may make possible in time a better adjustment of the quantity produced to the demand.

Middleman Service.—A saving of the cost of middleman services, or the return of the profits of the middleman to the producers has been advocated as one of the great possibilities of coöperation. In general, the expectation of large savings from this source has not been realized. However, the concentration of a large volume of farm products in one organization does result in appreciable savings. Insurance and warehousing costs may be reduced. The actual cost of selling may be less. A part of such savings, of course, arise from the standardization of the product.

The number and nature of the private agences which coöperative organizations displace depend on the nature of the product and the strength and experience of the coöperative. In general, coöperation has begun with country assembling and packing or processing units. The distribution of products to the various terminal markets has followed the performance of these functions and the organization of terminal selling agencies is a later development.

A coöperative association may assume the functions of a number of such agencies in the same line of business, but there has been no general reduction in the number of middlemen services, though tendencies in that direction are in evidence. Some fruit and vegetable associations, for example, are selling direct to chain stores. A few milk marketing associations are engaged in the retail distribution of milk. Livestock shipping associations are selling to some extent, direct to meat packers, and grain marketing associations may sell direct to mills.

Relation of Coöperative Marketing to Production.—A stronger realization of the close relationship that exists between marketing and production has developed during the year. The Secretary of Agriculture has stated on more than one occasion that it is a function of the coöperative organizations to assist their members to adjust, as far as possible, the production of agricultural products to the probable demand. A sharp distinction is drawn here between the adjustment and limitation of production. Adjustment of production, in fact, may be brought about by a change in the kind of crops produced without an increase or decrease in the total production. What is sought, it is claimed, is a stabilization of production at a point which will permit a reasonable return to the producers and yet will furnish ample supplies to the consumers. It is argued that an undue limitation of production is undesirable from the point of view of both the efficient producer and the consumer. Inflated prices caused by inadequate supplies bring an inevitable reaction. Marginal land and marginal producers are brought into the business of growing the product, and a period of over-production and distressingly low prices follows. Many people consider it possible to maintain a balance of production which will bring adequate returns to the efficient producers, but which will not encourage marginal producers to enter the field and create large surpluses. It is admitted by those who take this view that natural hazards make an absolutely balanced production impossible. They contend, however, that the number of acres devoted to the growing of the crop is the most important factor and that it is possible to make definite progress in adjusting production to demand.

Crop Reports.—There are two supplementary methods advocated to bring about an adjustment of production. First, the extension of the crop reporting activities of the United States Department of Agriculture and the widespread dissemination of the Department's estimates and reports; second, the marketing of the product by strong coöperative marketing agencies. It seems essential to most students of this question that the statistical information collected by public agencies should be distributed and interpreted to the farmers by their coöperative organizations. There is the further suggestion that the organization engaged in marketing the product should have considerable influence in determining the acreage devoted to the production of this product by its members; and, in some quarters, it is advocated that legislation should be enacted enabling coöperative organizations to plan production programs with their members and with each other, and possibly to direct their members as to the production of the product. It is admitted, however, that any plans proposed for the purpose of adjusting production depend for their success on the understanding which the producers have of the problem.

Standardization of Farm Products.—Grades promulgated by the United

States Department of Agriculture are coming increasingly into use in the shipment and sale of farm products. As a result of the use of grade standards, it is possible to employ State or Federal agencies to certify the grade of certain farm products at time of shipment. Shipping point inspections of 131,087 cars of fruits and vegetables were made during the fiscal year ending June 30, 1925. By agreement with a large group of coöperative creameries in Minnesota, the State and the Federal Departments of Agriculture jointly inspect and certify the quality of the butter shipped under the organization's trade mark. Federal grades for grain, cotton and other products have been in operation for some time. Within the past year negotiations have been completed with all European Cotton Exchanges whereby the cotton standards of the United States are taken as the basis for trade in American cotton on those Exchanges.

Marketing Credit.—The marketing of agricultural products requires the use of large sums of money which must be made available during the harvesting season. For example, the cotton associations, marketing less than 10 per cent. of the cotton crop, require approximately $100,000,000. The ability of the small farmer, especially in the South, to control the marketing of his crops has been restricted by his obligations to merchants, bankers and others who furnish him production credit. It is impossible, therefore, to separate marketing and production credit in considering the influence of proper financing on marketing.

The requirements of the farmers for intermediate credit, that is, credit for periods extending from six months to three years, the length of time necessary to produce and market crops and livestock, have been met in part by the establishment of Intermediate Credit Banks, under the general supervision of the Federal Farm Loan Board. These banks are able to loan, on proper security to coöperative associations, or to discount the agricultural paper of local banks or credit corporations. On November 14, 1925, these banks had loans outstanding to coöperative associations totalling $47,305,845, and the total of their discounts was $26,277,385.

The formation of agricultural credit corporations has proceeded fairly rapidly. Such corporations are frequently fostered by coöperative marketing associations. They may make loans to farmers for production purposes up to ten times their total paid-in capital stock and surplus.

Warehouse Act.—The financing of marketing operations has been made easier by the operations of the United States Warehouse Act, which is administered by the United States Department of Agriculture. Provision is made under this Act for the issuance of Federal licenses to public warehousemen with a proper financial standing who agree to comply with the regulations issued under the Act. A coöperative association, an individual or corporation storing certain designated agricultural products in such a licensed warehouse receives a receipt which may be used as collateral for a loan. Federal supervision of the warehouses insures the integrity of the receipt. The marketing loans obtained by cotton and tobacco marketing associations are based largely on the security of receipts issued by Federally licensed warehouses.

Although the provisions of the original warehouse act were confined to wheat, cotton, tobacco and wool, it has been extended to cover other non-perishable and semi-perishable agricultural products, as broom corn, late potatoes, syrup and peanuts.

Proposals for Marketing Surpluses of Agricultural Products.—The most discussed proposal for disposing of temporary or seasonal surpluses of agricultural products has been the plan providing for a government financed and supervised export corporation. The governing board of this corporation would have authority to declare that an emergency existed in respect to any commodity, to take over the surplus, and sell it at such prices as it would bring in the world market.

Other proposals look to the encouragement of coöperative marketing as the most hopeful method of solving this problem. It is believed, on the one hand, that more effective distribution through coöperative associations will make it possible to market temporary surpluses without disastrous effects on prices. On the other hand, the better knowledge of market demands gained through coöperation should tend to prevent the production of burdensome surpluses.

Other Events of 1925.—Research in marketing problems was stimulated during the year by the passage by congress of the Purnell Bill, which provides an annual Federal appropriation to the state experiment stations for research in agricultural economics and related subjects.

Operating under the act providing for the regulation of the packers and stockyards by the Department of Agriculture, the Secretary of Agriculture dismissed a complaint filed earlier against the merger of the Armour and Morris companies, two members of the so-called "big five" in the packing trade. Under the authority of the Grain Futures Act, the Secretary ordered an investigation of conditions surrounding trading in grain futures on the Chicago board of trade, following violent fluctuations in prices during the spring.

AGRICULTURAL LEGISLATION

By J. Clyde Marquis

Director of Economic Information, Department of Agriculture

Sixty-eighth Congress.—The progress in national agricultural legislation in 1925 was confined to a few measures passed by the second session of the 68th Congress which adjourned March 4, 1925. Agricultural subjects were given relatively little attention in this session and the results in definite action were small in number, though at least one measure has rather far-reaching effect. The discussion reflected the first session of this same Congress when there had been an unusual amount of attention given to the agricultural situation centered on the several bills for agricultural relief and those designed to extend coöperation among farmers.

Purnell Bill.—The outstanding agricultural legislation of the year was the passage of the public law No. 458, known as the Purnell Bill, authorizing an increase of appropriations for research work as follows: for the year ending June 30, 1926, $20,000 is provided followed by increasing the amount $10,000 each year until in 1930 and thereafter $60,000 a year is authorized for each agricultural experiment station. These funds are to be applied to conducting "investigations or making experiments bearing directly upon the production, manufacture, preparation, use, distribution, and marketing of agricultural products and including such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry, and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life, and for printing and disseminating the results of said researches."

This legislation provides definitely for research by the state agricultural experiment stations in fields which have heretofore received relatively little attention. These funds are in addition to Federal funds already appropriated for the states under the Hatch and Adams' Acts.

Federal Farm Loan Amendment.—An amendment to the Federal Farm Loan Act and the Agricultural Credits Acts of 1923, public Law No. 599 was passed. This gave to agricultural credit corporations chartered by the United States Government the same privilege to rediscount paper with the Federal Intermediate Credit Banks as is now given to institutions chartered under State laws. This legislation was designed to foster the organization in livestock territory of livestock loan companies, thereby to improve the credit facilities in the livestock industry. Another Act was passed which authorized the Secretary of Agriculture in his discretion, to waive any part of or all requirements with respect to grazing fees for the use of national forests in drouth-stricken regions during the calendar year 1925.

Minor Legislation.—Other bills of minor importance provide for the extension of reforestation by the Forest Service; the transfer of certain war materials from the War Department to the Department of Agriculture; an extension of time when certain domestic animals that have crossed the boundary into foreign countries may be returned duty free; authorized the creation of game refuges in the Ozark National Forest in Arkansas, and the establishment of a forest experiment station in California. The second deficiency appropriation bill provided the funds to carry into effect the Purnell Act and also the continuation of several other activities of the Department of Agriculture. One important item provided $1,335,000 for fighting and preventing forest fires during the fiscal year 1925.

The President was authorized to create a Muscle Shoals Commission to study the facilities at Muscle Shoals, and to report to him before the next session of Congress.

STATISTICS OF AGRICULTURE

By Dr. O. C. Stine

Division of Statistical and Historical Research, Department of Agriculture

INCOME FROM AGRICULTURAL PRODUCTION IN THE UNITED STATES (1919-1924)

Item	Year Beginning July					
	1919	1920	1921	1922	1923	1924
	Million Dollars	Million Dollars	Million Dollars	Million Dollars	Million Dollars	Million Dollars
Current value of total capital invested in agriculture [1]	79,607	72,915	62,740	61,349	59,548	59,154
Gross income:[2]						
Grains	3,005	2,246	1,266	1,393	1,393	1,934
Meat animals	3,346	2,328	1,932	2,180	2,167	2,621
Fruits and vegetables	1,747	1,705	1,379	1,410	1,526	1,370
Cotton and cottonseed	2,271	1,272	760	1,251	1,608	1,690
Dairy and poultry products	3,598	3,502	2,877	2,957	3,315	3,284
All farm products	15,719	12,668	9,214	10,366	11,288	12,136
Expense of production [3]	7,538	8,026	5,715	5,848	6,363	6,486
Net income from production [4]	8,181	4,642	3,499	4,518	4,925	5,650
Wage allowance for labor of operators and their families [5]	5,314	6,131	4,089	3,945	4,428	4,473
Reward for operators' net capital investment and management	2,867	—1,489	—590	573	497	1,177
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Rate earned on operators' net capital investment [6]	6.1	—3.6	—1.7	1.7	1.5	3.6

Division of Statistical and Historical Research, U. S. Bureau of Agricultural Economics, Department of Agriculture. Compiled from reports of the Division of Crop and Livestock Estimates, U. S. Department of Agriculture.

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[1] Values include land, buildings, livestock, implements, machinery, motor vehicles, and an allowance for cash working capital.

[2] Income as measured by the value of production less feed and seed requirements, in terms of weighted average crop-year prices paid to producers at the farm. This value includes products sold and products consumed on farms for family living. All farm products value includes other items in addition to those listed.

[3] Includes wages to hired labor, purchases of materials of production, taxes, rent paid on property rented from non-farmers, and interest paid on debts held by non-farmers.

[4] Net cash income plus value of food and fuel produced and consumed on farms.

[5] On the basis of 6,448,000 operators (owners and tenants). Farm operators' and family labor valued at wages paid to hired labor.

[6] As a reward for both management and use of capital.

STATISTICS OF AGRICULTURE

SUMMARY OF AGRICULTURAL STATISTICS (CENSUS YEARS, 1910-1920, AND ESTIMATES FOR 1925)

Item	Unit	June 1, 1900	Apr. 15, 1910	Jan. 1, 1920	1925 (Preliminary)
Population:					
Rural	number	45,614,142	49,806,146	51,406,017	
Farm	“	......	......	31,614,269	
Farms	“	5,737,372	6,361,502	6,448,343	6,372,263
Farms operated by owners and managers	“	3,712,408	4,006,826	3,993,539	
Farms operated by tenants	“	2,024,964	2,354,676	2,454,804	
White farmers	“	4,969,603	5,440,619	5,498,454	
Colored farmers	“	767,764	920,883	949,889	
All land in farms	acre	838,591,774	878,798,325	955,883,715	
Improved land	“	414,498,487	478,451,750	503,073,007	
Value of all farm property	1,000 dols.	20,439,901	40,991,449	77,924,100	
Land and buildings	“ “	16,614,647	34,801,126	66,316,003	
Implements and machinery	“ “	749,776	1,265,150	3,594,773	
Livestock	“ “	3,075,478	4,925,174	8,013,325	
Livestock on farms:					
Horses	number	18,267,020	19,833,113	19,767,161	16,535,759
Mules	“	3,264,615	4,209,769	5,432,391	5,730,608
Asses and burros [1]	“	94,165	105,698	72,491	
Dairy cows [2]	“	17,135,633	17,125,471	19,675,297	
Other cattle [3]	“	50,583,777	44,678,395	46,977,262	39,609,000
Sheep [3]	“	61,503,715	52,447,861	35,033,516	39,134,000
Goats	“	1,870,599	2,915,125	3,458,925	
Swine	“	62,868,041	58,185,676	59,346,409	54,234,000
Chickens	“	233,566,021	280,340,959	359,537,127	427,000,000
Other poultry	“	17,058,017	15,539,231	13,288,137	15,800,000
Livestock products:					
Milk produced, including estimates [4]	gallon	7,265,804,304	7,466,406,384	7,805,143,792	
Butter made on farms	pound	1,071,626,056	994,650,610	707,666,492	[5] 600,000,000
Cheese made on farms	“	16,372,318	9,405,854	6,371,396	
Eggs produced, including estimates [4]	dozen	1,293,662,433	1,591,311,371	[6] 1,654,044,932	[7] 1,968,276,000
Honey produced	pound	61,099,290	54,814,890	55,224,061	
Wool produced, including estimates [4]	“	276,567,584	289,419,977	228,795,354	[8] 249,885,000
Principal crops:					
Corn	acre	94,913,673	98,382,665	87,771,600	101,631,000
	bushel	2,666,324,370	2,552,189,630	2,345,832,507	2,900,581,000
Wheat	acre	52,588,574	44,262,592	73,099,421	52,200,000
	bushel	658,534,252	683,379,259	945,403,215	669,365,000
Oats	acre	29,539,698	35,159,441	37,991,002	45,160,000
	bushel	943,389,375	1,007,142,980	1,055,182,798	1,501,909,000
Barley	acre	4,470,196	7,698,706	6,472,888	8,243,000
	bushel	119,634,877	173,344,212	122,024,773	218,002,000
Rye	acre	2,054,292	2,195,561	7,679,005	4,088,000
	bushel	25,568,625	29,520,457	75,992,223	48,696,000
Buckwheat	acre	807,060	878,048	742,627	776,000
	bushel	11,233,515	14,849,332	12,690,384	14,647,000
Hay, tame [9]	acre	39,243,540	51,040,788	55,653,403	59,398,000
	short ton	48,863,194	68,832,777	74,724,252	86,474,000
Hay, wild [9]	acre	15,456,777	17,186,522	17,126,485	14,733,000
	short ton	17,284,858	18,383,574	15,631,288	13,041,000
Potatoes	acre	2,938,778	3,668,855	3,251,703	3,113,000
	bushel	273,318,167	389,194,965	290,427,580	323,243,000
Tobacco	acre	1,101,460	1,294,911	1,864,080	1,747,000
	pound	868,112,865	1,055,764,806	1,372,993,261	1,349,660,000
Cotton	acre	24,275,101	32,043,838	33,740,106	45,945,000
	running bale	9,534,707	10,649,268	11,376,130	[10] 15,603,000

XVIII. AGRICULTURE AND FISHERIES

SUMMARY OF AGRICULTURAL STATISTICS (CENSUS YEARS, 1910-1920, AND ESTIMATES FOR 1925)—*Continued*

Item	Unit	June 1, 1900	Apr. 15, 1910	Jan. 1, 1920	1925 (Preliminary)
Principal crops (*continued*)—					
Peanuts	acre	616,654	869,887	1,125,100	982,000
	bushel	11,964,109	19,415,816	27,449,930	31,549,000
Sugar cane, total	acre	386,986	476,849	372,938	[11] 294,000
	short ton	4,202,202	6,240,260	3,544,679	[11] 4,851,000
Sugar beets	acre	110,170	360,433	636,434	667,000
	short ton	793,353	3,902,071	5,993,409	6,932,000
Strawberries ...	acre	151,363	143,045	119,395	134,000
	quart	257,427,103	255,702,035	176,931,550	209,586,000
Apples	bushel	175,397,600	145,412,318	136,560,997	164,616,000
Peaches	"	15,432,603	35,470,276	50,686,082	46,565,000
Pears	"	6,625,417	8,840,733	14,204,265	19,820,000
Plums and prunes	"	8,764,032	15,480,170	19,083,942	
Grapes	pound	1,300,984,097	2,265,065,205	2,516,840,387	3,934,320,000

Division of Statistical and Historical Research, Bureau of Agricultural Economics, U. S. Department of Agriculture. Data for 1880-1920 compiled from reports of the Bureau of the Census. The production figures for census years are for the years preceding the census dates, i.e., 1879, 1889, 1899, 1909 and 1919. With the exception of the preliminary estimate of number of farms, horses and mules, reports of the Census for January 1, 1925, are not available, and figures for 1925 represent estimates *for that year*, subject to revision, of the Divisions of Crop and Livestock Estimates, and Dairy and Poultry Products, U. S. Department of Agriculture.

[1] Prior to 1890, asses and burros were included with mules.

[2] Dairy cows and heifers, 2 years old and over on the census date. The figures for 1910 are estimates of the Bureau of the Census for January 1, 1910. Jan. 1, 1925, estimate of dairy cows and dairy heifers over one year old.

[3] Calves and lambs included 1900-1925. Prior to 1900, census figures were nominally exclusive of calves and lambs.

[4] Figures for 1899, 1909 and 1919 include estimates of the Bureau of the Census for farms reporting cows, fowls, and sheep on hand, but no milk, eggs or wool produced. Figures for wool for 1879 are exclusive of the wool obtained from the fall clip of 7,000,000 range sheep.

[5] Production for 1924.

[6] Chicken eggs only.

[7] Production for 1924, chicken eggs only.

[8] Does not include pulled wool.

[9] Tame hay and wild hay not separately reported for 1879 and 1889.

[10] In 500-pound bales, gross weight.

[11] Louisiana only. Representing about 60 per cent. of total sugar cane produced.

WORLD PRODUCTION OF PRINCIPAL CROPS, AVERAGE 1909-1913, ANNUAL 1922-1925

(1909-1925. Calendar year in northern hemisphere; succeeding harvest in southern hemisphere.)

Crops and Principal Countries	Average 1909-1913 [a]	1923	1924	1925
	1,000 *bushels*	1,000 *bushels*	1,000 *bushels*	1,000 *bushels*
Oats				
Estimated world total [c]	4,467,663			
United States	1,143,407	1,305,883	1,522,665	1,501,909
Russia	924,918	506,998	489,531	
Canada	351,690	563,998	405,976	521,922
Germany	527,178	420,731	389,525	378,177
France	368,462	336,944	305,535	330,319
Poland	195,825	242,671	166,171	237,824
England and Wales	96,913	92,957	102,629	96,600
Czechoslovakia	96,147	91,684	82,959	80,550
Barley				
Estimated world total [c]	1,621,603	1,470,718		
Russia	418,030	217,513	154,029	
United States	184,812	197,691	178,322	218,002
India	145,496	145,460	137,060	
Germany	133,787	108,446	110,226	111,664
Canada	45,275	65,998	88,807	113,118
Spain	74,689	111,861	83,700	98,931
Japan	89,531	68,858	74,982	80,100
Poland	69,055	76,036	55,489	76,386
Flax				
Seed—				
Argentina	31,117	58,005	45,084	75,000
United States	19,543	17,060	31,711	22,007
India [c]	19,870	21,320	18,480	21,640
Russia (including Asiatic Russia)	18,984	13,389	16,523	
Flax—Cont'd				
Seed—				
Canada	12,040	7,140	9,695	9,354
Poland	1,703	2,338	2,240	2,307
Lithuania	1,126	1,056	1,332	1,806
Latvia	953	647	980	1,184
Wheat				
Estimated world total [b]	3,736,803	3,821,156		
United States	690,108	797,381	872,673	697,273
Canada	197,119	474,199	262,097	422,327
India	351,841	372,363	360,640	324,651
France	325,644	275,569	281,179	329,077
Italy	184,393	224,836	170,144	240,849
Spain	130,446	157,110	121,778	162,594
Argentina	147,059	247,036	191,138	214,765
Russia	758,941	330,234	330,590	
Corn				
Estimated world total exclusive of Russia [b]		4,476,253		
United States	2,712,364	3,053,557	2,312,745	2,900,581
Argentina	191,698	276,756	186,298	
Brazil		157,026		
Rumania	193,209	151,403	155,459	175,463
Mexico	133,362	101,320	106,345	
Italy	102,676	89,204	105,679	106,295
Yugoslavia	111,897	84,781	149,399	
India	82,620	76,088	87,120	

[a] Present boundaries.

[b] Preliminary.

[c] Crop harvested in the spring.

WORLD PRODUCTION OF PRINCIPAL CROPS, AVERAGE 1909-1913, ANNUAL 1922-1925—*Continued*

Crops and Principal Countries	Average 1909-1913 [b]	1923	1924	1924
Rye	1,000 *bushels*	1,000 *bushels*	1,000 *bushels*	1,000 *bushels*
Estimated world total [b]	1,763,696			
Russia	743,519	749,271	672,982	
Germany	368,337	263,037	225,573	301,891
Poland	218,943	234,730	143,884	257,545
Czechoslovakia	63,538	53,338	44,735	53,367
United States	36,093	63,077	64,038	48,696
France	52,501	36,517	40,241	44,766
Hungary	31,377	31,274	22,103	31,271
Spain	27,636	28,075	26,281	29,880
Flax	1,000 *pounds*	1,000 *pounds*	1,000 *pounds*	1,000 *pounds*
Fiber:				
Russia (including Asiatic Russia)	822,369	513,926	625,225	
Poland	47,336	90,004	96,222	118,387
Lithuania	49,703	66,623	71,859	89,507
Latvia	62,318	42,683	57,708	76,100
Belgium	51,887	59,779	35,379	51,638
France	40,732	23,172	33,870	40,396
Czechoslovakia	39,143	23,377	27,046	33,570
Esthonia	49,518	21,643	23,665	32,628

Crops and Principal Countries	Average 1909-1913	1923	1924	1925
Rice	1,000 *pounds*	1,000 *pounds*	1,000 *pounds*	1,000 *pounds*
Estimated world total exclusive of China [a]	111,000,000	120,000,000	126,000,000	
India	64,144,192	63,163,520	69,440,000	
Japan	15,787,276	17,417,935	17,960,713	18,700,354
Java and Madura	7,180,998	7,257,200	7,611,120	7,322,393
Indo-China	7,332,350	7,212,679	7,859,099	
Siam	5,447,671	6,034,465	6,733,006	
Chosen	3,292,776	4,724,513	4,110,476	4,669,412
Potatoes	1,000 *bushels*	1,000 *bushels*	1,000 *bushels*	1,000 *bushels*
Estimated world total [b]	5,437,074	5,700,089	5,975,790	
Russia (European and Asiatic)	740,190	1,200,933	1,136,187	1,627,039
Germany	1,373,609	1,197,095	1,337,540	1,471,280
Poland	889,531	973,487	987,292	1,049,102
France	526,793	364,446	564,020	538,474
United States	357,699	416,105	425,283	323,243
Czechoslovakia	245,210	228,701	239,358	268,367
United Kingdom (England, Wales, Scotland and Ireland)	254,441	221,835	217,542	[d] 156,512

[a] Unofficially estimated at 70,219 million pounds in 1917; 52,788 in 1920; and 50,056 in 1923.

[b] Preliminary.

[c] Present boundaries.

[d] Ireland not included.

[e] Excluding linters.

[f] First forecast, December 1, 1925.

[g] Chinese Cotton Mill Owners' Association.

[h] Exports.

[i] Turkestan, Trans-Caucasia, Khiva, and Bokhara.

[j] Laguna and Lower California only.

[k] Average for three years.

[l] Himely's estimate.

[m] One year only.

[n] Estimated by German Sugar Association.

[o] Refined sugar in terms of raw

[p] Crop harvested in spring.

[q] Unofficial.

[r] One year only.

[s] Rough estimate of total production in Java and Madura.

WORLD PRODUCTION OF PRINCIPAL CROPS, AVERAGE 1909-1913, ANNUAL 1922-1925—*Continued*

Crops and Principal Countries	Bales of 478 pounds net—year beginning about August 1			
	Average 1909-1913 [c]	1923	1924	1925
Cotton	1,000 bales	1,000 bales	1,000 bales	1,000 bales
Estimated world total [b]	23,680	19,590	24,700	[b]
United States [e]	13,033	10,140	13,628	15,603
India	3,585	4,332	5,069	[f] 4,660
Egypt	1,453	1,353	1,471	1,629
China [g]	3,473	1,992	2,179	2,114
Brazil	[h] 418	576	605	
Russia (Asiatic)	953	189	[i] 453	[i] 853
Mexico	193	175	298	[j] 211
Peru	110	203	206	
Argentina	[k] 3	69	67	
Uganda	20	94	146	
Sugar	1909-10 to 1913-14 *Short tons*	1923-24 *Short tons*	1924-25 *Short tons*	1925-26 *Short tons*
Cane— Estimated world total	10,321,150	16,158,739	17,256,565	
Cuba	2,287,052	4,606,223	5,734,872	[l] 5,927,840
India	2,649,480	3,715,000	2,841,000	
Java	1,485,236	2,026,200	2,202,063	2,552,000
Hawaii	567,495	691,000	766,098	
Brazil	[k] 332,813	881,764	895,611	
Philippine Islands	294,380	529,091	679,000	
Porto Rico	363,474	447,570	660,000	588,437
Peru	202,518	347,531	345,000	

Crops and Principal Countries	Average 1909-1913	1923	1924	1925
Beet	1909-10 to 1913-14 *Short tons*	1923-24 *Short tons*	1924-25 *Short tons*	1925-26 *Short tons*
Estimated world total	8,506,232	6,520,255	8,894,194	
Germany	[m] 2,304,268	1,263,455	1,740,046	[n] 1,692,000
Czechoslovakia	1,221,274	1,104,742	1,580,630	1,584,000
United States [o]	641,705	947,000	1,172,000	962,000
France [o]	807,887	523,913	879,823	
Poland	702,626	468,174	[o] 605,502	[o] 619,832
Russia	1,557,114	415,695	454,759	947,991
Belgium	278,837	326,273	434,851	396,850
Netherlands [o]	246,341	250,844	354,331	
Italy	208,675	366,161	427,726	
Tobacco	1,000 *pounds*	1,000 *pounds*	1,000 *pounds*	1,000 *pounds*
Estimated world total (exclusive of India and China) [p]	2,670,000	2,990,000	3,100,000	
United States	996,087	1,515,110	1,240,513	1,264,000
Dutch East Indies [s]	265,011	188,385	240,388	
Japan	93,717	136,114	124,010	140,550
Brazil	[r] 110,000	130,000	130,310	
Greece	58,987	118,884	[q] 97,923	[q] 134,900
Bulgaria	23,435	88,184	96,340	72,310
Turkey	[r] 88,180	[q] 50,646	[q] 170,000	[q] 105,571
Italy	22,964	69,004	[q] 101,351	[q] 98,300
Cuba	73,666	39,903	[q] 77,000	[q] 47,000
France	53,598	55,464	78,829	43,185

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DIVISION XIX
MINERAL INDUSTRIES

MINING AND ORE DRESSING

By Charles E. Locke
Massachusetts Institute of Technology

Good business conditions in general in America with a closer approach to normalcy following the war and its after effects, and also a further recovery of Europe, have been reflected in the mining industry during 1925 and have made it a satisfactory year without any of the features of a boom period. A good criterion is the iron ore shipments from Lake Superior ports, which, up to November first, amounted to 49,816,469 long tons. While this figure is not up to the high tonnages of some previous years it shows a marked improvement over 1924 with its 40,558,525 long tons over a similar period.

Prices.—Ranges in average monthly prices for the major metals have been 66.9 to 71.1 cents per ounce for silver; 13.3 to 14.7 cents per pound for copper; 8.0 to 10.2 for lead; 7.0 to 8.3 for zinc; and 51.4 to 60.5 for tin. All of these will show averages higher than in 1924. Lead stands out at the highest price for years, due to the uncertainty of a future lead supply sufficient to meet the demand. Copper has not kept up with the procession and many mines are operating at little or no profit on account of increased costs of labor and supplies and the overdevelopment of copper mines to a point where curtailment alone prevents an excess of production over consumption. The possibility of a further increase in the output of low-cost copper from the Katanga district in Africa is another big adverse factor. The price of basic pig iron ranged from $19.76 to $23.76 per long ton in 1925, making an average higher than in 1924. Other metals and metallic products had their various ups and downs during the year with perhaps more on the up side than on the down side. Arsenic showed a most decided slump because of a decreased demand. On the whole, the whole metal situation showed an encouraging tendency toward higher prices as the year came to a close. Gold mining continues to suffer under the handicap of a fixed price in terms of a dollar which has a lower value in terms of commodities.

Labor conditions have been exceptionally peaceful, the only major strike being that of the anthracite coal miners. Wages held at a satisfactory level and while slight labor shortage existed in some districts the supply in general about equalled the demand. The effect of a decreased supply of labor has been to force the operators to adopt more and more labor-saving machinery with the rather unexpected but pleasing result that the operators have found that efficiency was increased and costs reduced by the forced change. Other contributing factors to this improvement have been the various studies in standardization of apparatus and operations and the broad investigations of the U. S. Bureau of Mines in the many phases of mine work. Without gains such as these, many mines could not exist under the burden of heavy taxes from which they are suffering and for which they are begging relief.

Consolidation of the Industry.—The whole mining industry is undergoing a revolution. The day of the small mine is past. The number of mines is decreasing and new mines are discovered less frequently. Production to-day is coming more and more from large, low-grade deposits and the tendency is to consolidate into big units. Anaconda, in the copper industry, has come to hold a place similar to the U. S. Steel in the iron industry. Mining is becoming more like a manufacturing business. Increased production results not from new mines as much as from expansion of producing properties and from the ability to reopen and operate old mines at a profit under the stimulation of increased prices of metals and improvements in methods of treatment such as are referred to later under ore dressing and metallurgy. The only important discovery of new mines of recent date is that of the gold-copper deposits of the Rouyn district in Quebec.

Mining Technic.—Outstanding developments in present day mining technic may be summarized as follows:—Greater use of electrical power generated in central station units and for these central stations the Diesel engine is finding a place as the prime mover. Successful application of various methods of electrical prospecting and the adaptation of a sectional drill-rod system to the ordinary rock drill to enable it to penetrate up to 100 feet for prospecting purposes. Some installations of turbo compressors where the need of large units operating uniformly at full load allows their use, and an increased employment of small portable compressors driven by electricity underground or by either electricity or gasoline engine on the surface. The almost complete replacement of old style piston drills by the modern hammer drills with greater cutting speed up to a record of thirty-one inches per minute in granite under test conditions for one of the latest Gilman drills, and the limit is not set by the drill but by the ability of the manufacturers of drill steel to furnish a steel which will stand up under the powerful blows of the drill. Invention and use of the Gilman automatic heat-treating machine to insure proper uniform tempering of drill-steel bits for maximum cutting effect and minimum wear. Successful development of liquid oxygen as a commercial explosive for mining and general use of low freezing dynamites to avoid the necessity of thawing in cold weather. The advent of electrical shovels of the revolving type with long booms and mounted on caterpillar tractors in place of the old steam shovel on rails which had lower efficiency and higher operating cost. Machine loading underground by various types of mechanical shovels and scrapers to replace hand shoveling and thus speed up operations and reduce costs. The general use of electric locomotives of both the trolley and storage battery type in mine haulage with an increase in size of the storage battery type to put it more nearly on a par with the trolley type, and the greater field for gasoline locomotives in work on the surface where the exhaust fumes are not serious as is the case in the mine. The general adoption of electrical pumps of either the plunger or turbine types with the latter type gaining in favor. Electricity also coming more and more into vogue for hoists and supplanting steam and a beginning made in the installation of automatic hoists electrically operated without manual attention. A constantly widening field for systematic ventilation in metalliferous mines following the lead of coal mines. Electric lighting systems for the much-traveled underground places with the replacement of candles and open oil lights by the individual acetylene lamp at the working faces in all except the gassy coal mines where electric cap lamps are used for safety. A general improvement in living conditions together with more attention paid to the miner's welfare, safety, education and recreation.

Ore Dressing.—Just as the application of the flotation process revolutionized ore dressing ten years ago, so now the discovery of organic flotation reagents is revolutionizing flotation plants. The general tendency is toward larger and simpler mills and larger machines and higher efficiency with lower costs. Jaw crushers are in use with receiving openings as large as 66 by 84 inches, and rolls have diameters up to 78 inches by 24 inches face. In large plants the common practice is four steps of crushing using jaw or gyratory breakers to about 6 inches, gyratory breakers to about 4 inches, rolls or Symons disk crushers to 1 or 1½ inches and one or more steps of rod mills or ball mills below 1 inch to a final product of 1 mm. for tables or ¼ mm. for flotation. The rod and ball mills are firmly intrenched for fine grinding with divided opinion as to their relative merits. Gravity stamps are losing ground. Vibrating screens are being substituted for revolving and shaking screens. The new Fahrenwald classifier is a distinct advance in the art of wet classification. No important changes have been made in jigs and tables. Wilfley centrifugal sand pumps are driving out bucket elevators for handling wet pulp, while bucket elevators for dry ore are giving way to inclined belt conveyors which are less troublesome to operate.

A new process of separation based on dielectric constants is in the experimental stage and the Chance sand-flotation or heavy solution method which has worked so successfully on anthracite coal will undoubtedly expand to bituminous coal and then very likely to ores.

Flotation, Simplified Mill Practice.—The new organic flotation reagents, especially potassium xanthate, used in an alkaline circuit, usually lime, have in turn simplified and extended flotation. Oxidized ores of both copper and lead are now successfully filmed with a sulphide coating and floated just the same as natural sulphide minerals. Moreover, differential separation of two sulphides from one another is having far-reaching economic benefits. The copper man can eliminate much of the barren pyrite from his copper-sulphide concentrate and thus obtain richer concentrates and save on freight and smelting costs. The lead-zinc miner is now in the unheard-of position of being paid for both the lead and zinc in his ore or concentrates, because these can be separated by differential flotation into a lead product to the lead smelter and a zinc product to the zinc smelter. Formerly he had the option of shipping his entire product to the lead smelter and being penalized for his zinc or shipping to zinc smelter and paying penalty on lead.

Two specific examples will show the latest wonders accomplished by flotation. The Nevada Consolidated copper mill was formerly a combined gravity-concentration and flotation plant which in 1908 extracted 31 pounds of copper per ton from a feed containing 47 pounds per ton, and in 1919 extracted 22 pounds or 70 per cent. from a 32-pound feed at a cost of $1.075 per ton for milling and with a labor efficiency of 15.3 tons milled per man shift. With a new all-flotation mill in 1924 the extraction was 21 pounds or 87 per cent. from 24 pounds per ton in feed and the milling cost was $0.597 per ton and the efficiency 28.3 tons per man shift, and in 1925 from a feed containing 22 pounds of copper per ton the extraction was 20 pounds or 91 per cent.

The Cananea Copper Co. in 1923 operated with tables and flotation and did not eliminate any waste pyrite with the result that 2.5 tons of ore produced one ton of concentrate which analyzed about 4 per cent. copper, 15 per cent. insoluble and 35 per cent. iron. In 1925, on ore of the same grade (under 2 per cent. copper) an all-flotation treatment discarding pyrite with the gangue gave one ton of concentrates from about 10 tons of ore and the concentrates assayed around 19 per cent. copper, 7 per cent. insoluble and 30 per cent. iron. Moreover, the copper recovery was over 5 per cent. higher in 1925 than in 1923 and the net result of higher recovery and lower tonnage to pay for smelting in 1925 meant the difference between no profit in 1923 and a splendid showing in 1925.

COAL AND COKE

By R. Dawson Hall

Editor of the Coal Age

Bituminous Coal.—The year 1925 has shown that large tonnages can be obtained from the bituminous coal fields while the price remains at such levels as do not provide the operator a comfortable margin of profit. Throughout the year there was no car shortage and as a result, though many good mines remained closed, exceptionally large tonnages were produced, fully confirming the oft-repeated statement that there are too many mines and too many miners.

The year started with a good production, but the tonnage soon dropped to an extremely low level, the bottom being reached in the latter part of April when the output was only 1,251,000 tons per day. From that time on, the output began to improve, and the increase in tonnage has continued with slight pauses ever since, so that we have to go back to the hectic days of 1918, 1919 and 1920 to find tonnages as large. This sustained output at the close of the year was partly due to the winter season, partly to the prospect, and later to the occurrence, of the anthracite strike and partly also to the fear of the possibility of a general strike that would involve not only the anthracite but the bituminous fields also. Prices have been low. According to the Coal Age index they averaged in the first week of January $2.08, at the mine head; in the week of April 20 only $1.95; and in the last week of November $2.26.

Union and Non-Union Mines.—The larger part of the tonnage in the middle of the year, perhaps 70 per cent, was derived from the non-union areas where large wage cuts had been made. The union mines, which held to the Jacksonville scale of wages, were able to work only where freight differentials were sufficient to protect their local markets. Where there was less of such protection they were unable to work unless they were able to agree with a sufficient number of their men to accept a lower wage. This was the case in a number of areas such as the Pittsburgh, the Central Pennsylvania, the Fairmont and the Southwest. Several sections had become non-union in the year previous, having refused to bind themselves by the Jacksonville agreement.

Mechanical Devices.—The progress in mechanical loading so generally anticipated has not been made. With small cars such as served indifferently well with hand loading, general success with mechanical loaders seems dubious unless conveyors are installed, to obviate the need for placing cars one by one. Steady delivery of coal to a string of cars is an essential need of mechanical loading. Shuttling cars one by one to the point of loading involves too many delays where cars are small. With such small cars, conveyors without mechanical loaders may be an important advance; but loaders without conveyors are a less obvious success.

With large cars, however, and favorable roof conditions which permit of operation without a close set propping of the roof, loading has been very profitably performed with the aid of mechanical loaders without conveyors. Of course, many loaders have incorporated in their equipment some form of conveyor, but the reference in the foregoing is to conveyors that carry the coal beyond the machine itself and carry the coal to a point where it can be loaded into a string of cars moved steadily past the point of discharge. In Illinois the union has interposed difficulties, refusing to make a workable scale and requiring that the coal be shot only when no men but shotfirers are in the mine.

Types of conveyor that depend on the differential motion of a pan forward and back, have been introduced at a few bituminous plants during the past and preceding year. Their simplicity has much to recommend them, and they will doubtless prove themselves as efficacious here as in Europe, and as in the few anthracite plants that have been using them. They will operate on a down grade, on the level or even on a slight up grade.

The opposition of the union to any machines that reduce the need for labor is a difficulty to be met. Where men are scarce the introduction of machines is less resisted because there is no fear that the less competent men will be laid off.

Anthracite.—Many circumstances are restricting the output of anthracite. Among these are the activity of the oil-burner equipment companies, the progress of soft coal in the domestic markets of the West, the displacement of fine sizes of anthracite by bituminous slack, the increased output of by-product coke and even the activity of the gas companies. Nevertheless the anthracite companies shipped a goodly tonnage prior to the strike of September 1; and stocked also a large tonnage of all sizes, more, probably, than at any time in the history of the anthracite region.

At the beginning of July the United Mine Workers of America at the Tri-district Convention demanded that when a new contract be signed, the wages of day men be increased $1 and the tonnage rate of miners be raised 10 per cent. With these demands were others calling for pay for all manner of incidental services and for all kinds of special working conditions. Demand was also made for uniform scales for all classes of work as between miner and miner.

The operators were of the opinion that all these many advances and imposts would in aggregate raise the cost of coal 30 per cent. In addition the mine workers' union demanded that the coal companies collect from every employee the union dues, the collection of which is customary at union bituminous mines and is known as the "check-off." As such collections have been made partly with the purpose of swelling the union war chest with funds for use in unionizing non-union fields, this exaction was viewed not without reason as being unlawful.

The contending parties met at Atlantic City, and the operators declared that the present costs of production must be lowered to compete with the other fuels which have ousted anthracite in Western coal markets and were already severely jeopardizing the sales of anthracite in the Atlantic Coast cities where most of the anthracite now produced was being consumed. The National Industrial Conference shortly prior to the wage conference published a report on the increases of wages in anthracite mining as compared with those in other industries, showing that since July, 1914, anthracite wages had increased 192 per cent., manufacturing wages 129 per cent., railroad wages 141 per cent., illuminating gas plant wages 111 per cent., and electric light and power plant wages 121 per cent.

Discussion on the demands continued from July 9 to August 4 when John L. Lewis, President of the union, complaining that the operators were willing to concede nothing, withdrew from the conference with the other representatives of the mine workers. Sept. 1 the strike commenced and continued without marked incident till Nov. 28 when Gifford Pinchot, Governor of Pennsylvania, made a proposal which the mine workers accepted and the operators rejected without discussion.

The most important developments during the year other than those relating to labor were in regard to preparation. New standards were put into operation on April 1, which standards while bettering the company specifications that had come into effect since the war failed to equal in severity those private standards which had been in existence in earlier years.

Progress was made in a method of cleaning which depends on the sustaining quality of a quicksand maintained by agitation. In this quicksand, the purer coal floats and the rock and bone sink. About 22 plants are now in operation. A Belgian method of cleaning which depends on the old principle of sedimentation but provides more favorable means for reproving the sedimentary material is being introduced by two large companies and is now being employed by a third.

Fallen rock is being removed from old rooms most effectively by the use of loading machines that were originally devised for handling coal and ores, in this manner very greatly economizing in the recovery of old pillars.

PETROLEUM

By A. H. Hubbell

Managing Editor, Engineering & Mining Journal-Press

Year's Production.—Production of crude petroleum in the United States in 1925 established a new high record for the industry. A conservative estimate for the year, based on figures reported by producers up to the time of writing, places the total at 763,500,000 bbl. of 42 gal. each, or an average daily output of 2,091,780 bbl. Those who, in hope of better prices, had welcomed the drop in annual production from 732,407,000 bbl. in 1923 to 713,940,000 in 1924, the first decrease since 1906, were disappointed thus to see in 1925 an increase of about 7 per cent. compared with the year before. The Smackover field, in Arkansas, where new production, consisting chiefly of a heavy crude, was obtained from deeper sands discovered in February, thus reaching its peak toward the end of May, was chiefly responsible for this increase. As a result, Arkansas' output for the year, which it had been estimated would be about 45,000,000 bbl., ran as high as 80,000,000.

Oklahoma, Texas and California, which in 1924 produced about 540,000,000 bbl. or about 75 per cent. of the total domestic yield, accounted for 553,300,000 bbl. in 1925, a little less than 72 per cent. To this Oklahoma contributed 169,500,000, Texas 152,500,000, and California 231,500,000 bbl. The rest of the country produced, it is estimated, about 130,000,000 bbl., the Rocky Mountain region contributing 46,000,000, Kansas 27,000,000, Louisiana 22,000,000, and the Eastern area 35,000,000.

Conditions.—Events during 1925 helped bring about a clearer understanding of the domestic petroleum situation. The vigorous search for new pools and their rapid exploitation by competitive interests, when found, had in the several years preceding resulted in a flood of oil that continued throughout 1925, discouraging to those who needed better prices. Overproduction and unnecessarily rapid depletion of the country's oil resources were charged against the industry by some of the producers themselves. The real cause of this condition was, and is, the legal inability of operators to decide collectively to limit drilling and production, though some for selfish reasons would probably have refused to agree to curtail output even had the law permitted it. The so-called Doherty plan, proposed by Henry L. Doherty, for conserving oil, which to some seemed likely to put the industry under Government control, was first proposed in 1924. Before that year ended, the President appointed the Federal Oil Conservation Board to investigate conditions.

Federal Investigation.—In January, 1925, the directors of the American Petroleum Institute, the principal trade association, decided against the Doherty plan as a solution of the producing problem and appointed a committee to study the situation. The Federal Board, with Secretary Work as chairman, on beginning its conservation probe through the medium of questionnaires, soon found that the Government itself was an important factor in the current production of petroleum, the output from public lands, Naval reserves and Indian lands having amounted to 101,600,000 bbl. in the fiscal year 1923-24, or over 14 per cent. of the total domestic output. As a result Secretary Work recommended legislation to conserve the Osage oil lands in Oklahoma. Thus this recommendation became part of the Federal oil board's policy, and a step was taken in the direction of conservation.

Petroleum Institute Report.—Reporting in the fall, however, the Petroleum Institute's committee declared that exhaustion of domestic oil reserves was not imminent and that it was reasonable to assume that enough oil would be available for national defense and essential domestic uses until science should limit the demand by developing more efficient use of the oil, or substitutes for oil; or should displace its use as a source of power by harnessing a natural energy.

The logical deduction is that conservation is unnecessary. The report seems unwarrantably optimistic, however, based on hope rather than facts, and inspired by fear of Government control. Certain it is that the search for new production, whether from new pools or from deeper horizons in old fields, continues without regard for the condition of the market; and that the output of a pool, once found, quickly rises to its peak and then declines. When one considers that Oklahoma's 60,000 producing wells are averaging only about 8 bbl. per day, Texas' 20,000 about 18 bbl. daily, and California's 12,000 about 52 bbl. daily, the possibility of domestic shortage seems not at all remote.

Quantities.—With the low prices resulting from a glutted market and large stocks of oil in storage it is natural that wasteful uses should be made of crude petroleum. The demand for this commodity, all grades included, has exceeded the supply. In the first eight months of 1925 domestic consumption of crude oil (indicated) is estimated by the Petroleum Institute at 527,937,986 bbl. and exports at 74,016,858 bbl., making the total demand 601,954,944 bbl. To meet this 503,323,000 bbl. was produced, 57,046,017 bbl. imported and the balance drawn from stock.

The market for refined products was likewise weak throughout the year, in a state of collapse in fact, when gasoline consumption was at its peak. Excessive refining capacity, huge stocks of crude on hand, and the possibility of producing a synthetic gasoline by cracking whenever desired were evidently the causes of this condition.

Present Status.—Prosperity for the industry during 1925 is not indicated by a situation in which the principal factors were the following: a record output of crude petroleum in the face of prices already low; large stocks of both crude and refined oils carried over from the previous year; and the search for new production, at home and abroad, continuing with unabated vigor. Some control of drilling and production, either public or by private agreement, is necessary to prevent the obvious waste of this important natural resource. For 1926 the outlook is that the domestic industrial situation will continue much as it has been in 1925, with the chances in favor of a decline in output.

COPPER

By Leonard S. Austin
Mining Engineer, Los Angeles

Mining.—Many of the low-grade copper deposits, carrying 1.5 per cent. copper or less, are worked by open-pit methods. The deposit is blasted and loaded into railroad cars by steam or by electrically operated shovels of the caterpillar type, these showing a 10 to 20 per cent. economy of operation, because of the elimination of lost time; they show also increase of shovel output, and decrease of pit labor. Shovels of the revolving universal type are now made of about 50 tons weight, valued at $25,000, delivered, and operating at a cost, including interest and depreciation, of $3.50 to $4.50 per cu. yard. The method of drilling and blasting will depend upon the height of bank to be thrown down. Banks of 20 feet in height may be drilled by machine drills preparatory to blasting. Higher banks are churn-drilled, the holes sprung, and the ground thrown down by the larger charges. Finally, for banks of 100 feet it pays best to tunnel and chamber, to load these chambers with explosive, and to shoot down a great volume of rock together. The larger fragments are block-holed before loading.

It is to be noted that in mining the ore body at Jerome, where the steam shovel is used, a considerable overburden is removed. For smaller production the mill-hole or glory-hole system has proved to be quite as economical as removal by steam shovel, where for low cost of operation large quantity production is essential. The undercut system of caving accounts for a daily production of 40,000 tons of ore at present, and is therefore one of the most important of the mining methods applicable to low-grade copper deposits. The cost of such methods varies from 68 cents to $1.30 per ton.

The Price of Copper.—In terms of gold, new mining and metallurgical methods have united in the production of two pounds of copper to one in former years, and this technical efficiency is increasing, especially with large-scale operations. In prewar days, the average cost of producing copper was 8 to 9 cents, while cost in 1918 was 16 cents per pound. In cents of the 1925 dollar, this 1918 cost is reduced to 12.9 cents. This refers to the profitable mines, since there are always marginal properties in operation. However, some curtailment in production has been made during the past year, with a view of sustaining prices.

A factor in maintaining the price of copper is its increasing exportation, and the consequent reduction in the stocks available. This, with mine curtailment, is bound to increase the price and will encourage the large companies to resume full production.

The development of the electrical industry is chiefly responsible for the great increase in the demand for copper. Over half the copper used in the United States is thus used. Next to this comes the use for wire and rods and for automobiles.

Mucking and Loading.—The removal of the ore from stopes after breaking, where the ore was loaded to the tram car by hand shoveling, is now in many cases supplanted by machine loading, the broken ore being scraped up an inclined chute into the car, adding thus to the speed and efficiency of handling.

Copper Smelting.—The year 1925 notes the operation of many furnaces perfected in detail, especially in the line of side-charging the reverberatory furnace. This is performed by pipes leading down from the feed hoppers above, with a regulation of flow so as to maintain the furnace steadily filled where melting proceeds most rapidly. This way of charging has, it appears, been patented by Carson, who with a favorable decision, now feels at liberty to collect royalties due for many years. It seems probable this will stimulate charging methods which avoid such infringements. One example is the side-charging screw-feed by which the ore is propelled through the side walls into the furnace.

The Magma Smelting Works.—This is a reverberatory smelting plant of 450 tons capacity, now in successful operation on a mixture of custom ores and of flotation concentrates from the mill of the company, situated at the mine adit about a mile from the works. The watery concentrates are pumped by pipe-line to the smelter, and there de-watered on an Oliver filter. This product, mixed with the dry, crushed ore, is stored in bedding-bins, and thence sent to the roasters. All movement of ore is effected by conveying-belts to this point, while the calcine is trammed to the reverberatory furnace. The matte produced is converted and cast as blister copper for shipment to an Eastern refinery. The works merit close study as a well designed plant. (See *Mineral Industry*, 1924.)

Smelting versus Leaching.—Even as the blast-furnace is giving place to the reverberatory, so it may be expected that leaching and electrolytic precipitation will supersede smelting, since a high-grade product can be obtained, especially in the treatment of low-grade silicious copper ores, these latter being expensive to smelt. Nor are we to forget that flotation is destined to have its place in the concentration of mixed sulphides. In this connection, it is to be noted that many of the copper ores of the West carry an excess of unwanted iron, and this is to be eliminated by electrolytic precipitation, or more recently by differential flotation. Pyrite may be largely eliminated from an ore containing copper in form of chalcocite, covellite or bomite, irrespective of the presence of lead or zinc. This is done by the aid of sodium cyanide, which forms a coating of ferro-cyanides, which are in turn converted into hydrated oxide of iron.

The Katanga District, South Africa.—This region, extending for 300 miles, belongs to the Rhodesian Congo Border Concessions. Two of the properties there carry 3½ per cent. copper, but the paying mines are those of the *Union Minière*, the Star of the Congo and the Kambove. The cost of production at this leading property is 10 cents per pound, even on an ore that ranges from 6 to 16 per cent. copper, and with an output of 15,000,000 lb. per month. For all that, as the Union Minière opens up its properties, it may become one of the larger producers in the world, especially when rendered more accessible by rail, and with improved metallurgical methods, such as leaching in place of smelting, etc.

Leaching Practice at Ajo, Ariz.—The oxidized ore of the New Cornelia Copper Co. at this place, containing 1.5 per cent. copper, has been leached and electrolytically precipitated for the production of a high-grade electrolytic copper which is shipped directly to an Eastern refinery. Now sulphides are supplanting the oxidized material, and these are recovered by oil flotation in a 5,000-ton plant. The ore, crushed as heretofore in gyratory crushers and disk crushers to ¼-in. mesh size, is sent to the concentrating mill for final fine crushing in rod-mills of the Marcy type in closed circuit with Dorr classifiers. The overflow from the classifier passes first to the rougher flotation cells of the Callow-Inspiration type. Tar at the rate of a half pound per ton is added at the rod-mill; pine oil in quantity one-tenth of a pound just before the rougher cells. The rough concentrate passes then to cleaner cells, and finally to recleaner cells. From the flotation cells, the frothed concentrates go now to Dorr thickening tanks, 58 ft. dia. by 8 ft. deep, the thickened product to a collector tank, also 58 ft. dia., thence by gravity to an Oliver filter. The concentrate, carrying 12 per cent. moisture, is discharged on a 24-in. conveying belt to deliver to a 60-ton railroad car, being sent away to the Calumet and Arizona smelter for final smelting and converting to blister copper.

Refining.—The smelting plant and refinery of the Nichols Copper Co., at Laurel Hill near New York, incorporates many recent detailed improvements. The electrolytic refinery has a capacity of 25,000,000 lb. of copper monthly, operating on the series system. Ore and concentrates are received from domestic and foreign sources, some even from the Union Minière of South Africa. Since no reverberatory furnace is provided, all ore is crushed to sinter size, and agglomerated on a Dwight-Lloyd sinter machine for smelting. The furnace charge, taken from stock piles, is loaded into a car standing in a pit. When charged with coke, sinter and cold material, the charge-car is hoisted vertically, then transferred horizontally by an overhead rail system to the furnace charge-floor, and so to the furnace. The furnace, 39½ ft. long by 4 ft. wide at the tuyères, is blown with air at 20 to 40 oz. per sq. in., depending upon the speed that the furnace is desired to run. The oval settler, 14 ft. by 8 ft. in size, is lined with magnesia brick, and the outflowing slag stream from it is granulated with a water-jet and loaded into barges, which take it to sea and dump it, there being no dump room near the smelter. The matte is tapped into ladles, and transferred to one of the four small basic-lined converters. The converter-slag, carrying 7 per cent. copper, is sent back to the blast-furnace, while the blister is cast in blocks and sent to one of the ten anode-furnaces of 180,000 lb. daily capacity. Anode-casting is done at the rate of 15,000 pounds per hour. great care being taken to produce a smooth casting.

GOLD AND SILVER

By M. W. von Bernewitz
United States Bureau of Mines

Summary.—This short review of gold and silver is merely for the purpose of giving a general idea as to the status and indications of the mining industry. On the whole, the year 1925 was one of activity and increased operation. The year started favorably and ended better. This was also the case with our neighbors—Canada and Mexico. While our gold and silver mines had a good year, the production of the precious metals was enhanced by the greater production of base metals. The more activity in the mining and production of base metals the more gold and silver is produced, because approximately 10 per cent. of our gold and 70 per cent. of our silver are by-products of copper, lead, and zinc. There have been no serious labor troubles. The cost of supplies has remained at about the same level as in 1924, but with an upward tendency.

Reports from reputable engineers who recently have spent some time in the mining districts of the Western States are satisfactory and optimistic. More prospecting is evident in most of the larger producing States. Producers of all metals are busy and looking ahead. Market prices have been high for months and probably will continue so for the present.

American Production.—Figure 1 shows the production of gold and silver during the past twenty-five years, with prices for silver. This shows the trend at the end of 1925.

During the period 1905-1916, the yearly production of gold was relatively even, from 88 to 101 millions of dollars in 1915; it was well over 90 millions most of the time. Then, as will be seen from the curves, there was a fairly rapid descent to 49 millions in 1922, the result of economic conditions. Production picked up to 52 millions in 1924, and the indications for 1925 are that we may expect 55 millions. As to silver, we had been producing from 50 to 57 millions of ounces for twenty years to 1915, when it reached 75 million. Since then there has been a falling off, which was arrested in 1923, only to fall away again in 1924; but the year 1925 should witness an upturn, as shown.

Proportion in World Status.—The status of the United States as a gold and silver producer in relation to the remainder of the world may be shown as follows:

	Percentage of Total	
Year	Gold	Silver
1884	30	46
1889	27	42
1895	23	33
1900	31	33
1905	23	33
1910	21	26
1915	22	41
1920	15	32
1925 (estimate)	15	31

Briefly, the reason for our world standing in gold production dropping off from 30 per cent. to 15 per cent. is as follows:—The period 1900-1917 was one of high production, culminating in the record in 1915. The Boer War cut the Transvaal output to a fraction of what it was, but by 1905 it had picked up, and was ahead of the 1899 production. Australia, Canada, Mexico, and Siberia were at a high level. Still the American contribution was equal to 30 per cent. of the world. As Transvaal had more than recovered by 1905, the United States fell off to 23 per cent., although production was somewhat higher than before, and gained from then on to 1915, as did Canada, Mexico, and Siberia. Australia fell off meanwhile. As will be seen from the table above, America practically held its place from 1905 to 1915, inclusive. Then economic conditions affected mining in this country so that our record of 1915 was cut in half by 1921 and remained at about that point until 1924. Although Canada, Transvaal, and Mexico had slight setbacks, they continued to gain in production until the two first mentioned reported records for 1924; mining in those two countries was aided by the premium on the gold sold. Meanwhile Siberia fell off to a fraction of its former output, as did Australia to some extent, while Central and South America, India and Japan, and Rhodesia and West Africa practically held their own. As the result of these fluctuations America has fallen back to 15 per cent. of the world's total. The indications are that it will at least hold its present standing for a while, unless Canada and Transvaal continue to break records and Siberia returns to its old level; the former is likely but the latter not so for some time to come.

Future Prospects.—In discussing the gold-mining industry, A. B. Foote, president of the North Star mine at Grass Valley, California, stated in the November issue of *The Mining Congress Journal* that the high cost of labor and supplies is almost the only cause for the depression existing in the industry. Conditions can be expected to improve only if these costs become less. There has been a period of high prices after every great war, getting back to normal in 10 to 15 years; such a fall in production cost seems to offer the greatest hope for the future. The world-wide return to the gold standard and decrease in Federal taxes will help the present situation, but there seems to be no immediate prospect of a complete return to normal on account of the excessive cost of mining.

An extremely instructive analysis of the world's gold, and the status of the United States in production and holdings, is that of J. E. Spurr, editor of the *Mining Journal-Press* in that publication for April 25, 1925. As to the future, the general knowledge as a geologist-engineer enables Mr. Spurr to forecast that as the result of a thorough, aggressive, and scientific campaign of intensive exploitation, all over the world the relatively subordinate position of the United States as a gold producer will be permanent; and while the annual production may increase, it will not in the long run do so in proportion to the growth of wealth and trade.

Gold and Silver Movements.—Up to July, 1924, exports of gold from this country each month were only a few hundred thousand dollars, but in August over 2 millions was reported. Thence, the amount rose until 39 millions was shipped away in December. The year totaled 61 millions. In January, 1925, the amount was 73 millions, but it gradually fell off to 2 millions in August, and the first nine months of 1925 records 204 millions against 11 millions in the same period of 1924, according to the Bureau of Foreign and Domestic Commerce. Imports, on the other hand, have decreased from 269 millions in the first nine months of 1924 to 59 millions in the same period of 1925. However, the quantity of gold in the country amounts to 4¼ billions of dollars.

Exports of silver are practically the same to October, 1925, as in 1924—namely, 74 millions against 79 millions. Imports also are fairly close, 49 millions against 55 millions of dollars.

The net loss of precious metals in America through excess of exports amounted to nearly 170 millions for the first nine months of 1925. In 1924 the net gain was 235 millions in the same period.

Government Assistance to the Industry.—As the United States Bureau of Mines with the Mineral Resources Bureau of the United States Geological Survey was transferred from the Department of the Interior to the Department of Commerce at mid-1925, gold and silver producers are interested to know to what extent this Bureau, now under the control of a mining Secretary, will give them assistance in problems of mining and metallurgy. The general feeling is that Secretary of Commerce Herbert Hoover, more or less guided by his Advisory Committee, will see fit to expand the activities of the Bureau for safety and efficiency in mining of all types, as a basic industry (all mining) that contributes 5 billions of dollars annually to the country's wealth and half of the traffic of our railroads.

The Senate Commission of Gold and Silver Inquiry, created by Congress in March, 1923, expired by limitation in March, 1925. During this period the Commission made a fairly complete study of the industry and published thirteen reports of 6 by 9-inch size, covering a total of about 3,200 pages. Field hearings were held in ten States and one Territory producing gold and silver. The Commission was in close touch with all phases of the industry and eventually some tangible result may ensue from its recommendations.

Silver Market and Problems.—Silver averaged nearly 67 cents an ounce during 1924, but the current year will show an average of about 69 cents, judging by the market for the first ten months and the prospects. A gain of 2 cents an ounce does not seem much; but on a total of, say, 70,000,000 ounces it means additional revenue of $1,400,000 to American producers. The reasons for this strength in the silver market were firmness induced by events in China and their aftermath, purchases by India on account of a favorable season, and disinclination of America to sell freely. Europe was not a large factor in the market and was a small buyer. A curve of prices shows a depression from March to May, then an upturn to July, after which it was comparatively level to the end of the year. The higher price for silver has stimulated activity at all silver mines as well as at those producing the metal as a by-product, such as the copper mines in Arizona, Montana, and Utah, and the lead and zinc mines in Colorado, Idaho, and Utah.

As is probably known, producers of silver in 1924 organized the American Silver Producers' Association to protect and aid the industry by watching the market and any legislation that might be detrimental to producers. A second meeting was held at Salt Lake City in August, and production totaling 100 million ounces in North America was represented.

In discussing the outlook for silver, W. Mont Ferry in the *Mining Congress Journal* for November, 1925, believes that it may safely be predicted that it is encouraging and the price will have a strong upward tendency.

The re-valuation of fifty-four silver properties, by the Bureau of Internal Revenue, for purposes of computing invested capital and depletion allowance in connection with Federal income taxes was to have been discussed at Washington, D. C., on July 13. The principal question to be considered was the price factor to be used in determining property values as of March 1, 1913. The Bureau first used 65 cents an ounce for silver in estimating expected gross earnings, but proposed to use 57.78 cents, which would greatly reduce the valuations and increase the tax liability of the companies for 1919 and subsequent years. Naturally the producers objected, and the American Silver Producers' Association and American Mining Congress joined in defending them against the suggested re-valuation and increase of taxes. In September it was announced that no general re-valuation is necessary, but as errors were made in some of the original valuations, these should be corrected.

In order that the U. S. Treasury might save expense and waste in printing new, and calling in damaged, bills, an attempt was made to get 40,000,000 silver dollars in circulation in place of dollar bills. The silver money did not become popular; east of the Mississippi, at least, as fast as the coins were issued they were returned by the banks to the Treasury for currency that could be more easily handled. The campaign for extending the use of silver money was therefore abandoned for the time.

Gold and Silver Mining Compared by States.—The States might be designated in the following manner, in the order of their production:

Gold States	Silver States	By-Product Gold States	By-Product Silver States
California	Nevada	Utah	Utah
Colorado	New Mexico	Montana	Montana
Alaska	California	...	Idaho
South Dakota	Texas	...	Arizona
Arizona	...	...	...
Nevada	...	...	Colorado
Oregon	...	...	...
Idaho	...	...	...

Alaska.—Conditions in this Territory, particularly as to Federal control and development, were discussed at length by Governor S. C. Bone in *The Saturday Evening Post* for August 8, 1925, under the title, "Alaska from the Inside." No plausible argument in opposition to coordinated Federal activities in Alaska which would be conducive to the dispatch of business and general efficiency has ever been advanced. The ultimate remedy, Mr. Bone thinks, is full territorial form of government, preliminary to statehood at the earliest possible date. Curiously, in this analysis of Alaskan affairs, little mention is made of mining, but Mr. Bone says that Alaska is a land worth working for and living in. It has infinite possibilities and resources. Slowly, laboriously, surely, it is going ahead, and its outlook is bright with promise.

The U. S. Geological Survey did considerable field work in the Territory during the year and issued several bulletins of practical value on certain districts. The revival of gold dredging by a well-known company at Nome should result in an increased output or at any rate maintain the present scale.

One of our remarkable gold mines is the Alaska Juneau at Juneau. At present the monthly results are 300,000 tons of 65-cent rock mined. Of this, about half is discarded as waste and the remainder is milled. Costs are remarkably low—23 cents a ton for mining and 24 cents for milling. A surplus is now reported each month.

Arizona.—From the State Mine Inspector's latest report it appears that a number of companies that produce straight gold ores and silver ores or gold-silver and silver-gold ores are not shipping ore, although many are prospecting and developing. As usual, a third or more of the precious metals in this State came from copper mines. Mohave County contributes most of the gold ore. Two big mines shut down through exhaustion of ore reserves but three others have erected mills. The new sampler at Kingman has aided small producers considerably.

California.—In this State, gold is recovered by dredges and placer operations from ores from the Mother Lode district which is seventy miles long, from ores in the Grass Valley district, and from ores in scattered areas. Hydraulicking is restricted by the law which involves the construction of dams behind which the tailings or débris can be stored, but Major H. A. Finch of the California Débris Commission suggested in the *Mining Journal-Press* for May 16, 1925, that the Federal Government could provide a revolving fund for the erection of impounding dams, the cost of which could be met by payment for storage of tailings created by hydraulic operators.

In addressing the San Francisco Section of the American Institute of Mining and Metallurgical Engineers, J. M. Hill of the U. S. Bureau of Mines pointed out that much better mining, better metallurgy, and lower costs are necessary if the gold production of California is to be increased. Hydraulic and drift mining offer possibilities of considerable expansion. Operating costs are now at a high point and must be reduced. As adverse economic conditions are diminishing the production of gold, he advocates action to show a legitimate cause for a reduction of taxes, a central buying organization for mine supplies, and close contact between the metallic and non-metallic mining interests of California.

Regarding the taxation of gold mines in California, A. S. Howe in *Mining and Metallurgy* for April, 1925, discusses the present system employed by county assessors which he contends is not a logical one. An operating mine should not be taxed heavily and the idle mine taxed lightly; the former is of great public benefit and should be encouraged to continue its operations.

There are now nineteen dredges at work in California on six creeks and rivers. In 1913 there were seventy dredges. There is plenty of workable gravel available, but until the State and Federal restrictions are complied with these areas will not be worked. J. M. Hill of the U. S. Bureau of Mines forecasts gold dredging to be a thing of the past in about ten years.

Much of the silver and a little gold comes from the California Rand silver mine in Southern California, which has had a remarkable career since 1919. It is still going strong, and during the year ended June 30, 1925, the yield was 2,482,000 ounces of silver and 9,447 ounces of gold. Dividends continue to be paid and ore reserves are being developed at the rate of $2,500,000 in eighteen months.

From 1895 to date the Randsburg district of California has yielded $15,000,000 of gold, $10,000,000 in silver, and $11,000,000 of tungsten. The California Rand silver mine, already mentioned, is in the district, the geology and ore deposits of which are described by C. D. Hulin in Bulletin 95 of the State Mining Bureau, issued in 1925. This report of 152 pages is replete with maps and information of practical value. As to the future, the author of the bulletin does not believe that deep exploration of gold is justified unless an orebody is actually being followed or unless special structural conditions suggest such work, which conclusion also holds more or less for silver and tungsten.

In his description of the almost forgotten Calico silver district of Southern California, F. B. Weeks in the *Mining Journal-Press* for May 9, 1925, says that although it has produced 30 million or more dollars and is very close to two transcontinental railways and near a well-known part of California, few mining men know its locale. The drop in the price of silver to 63 cents in 1894, coupled with high costs and inefficient metallurgy, resulted in the cessation of operations a year later. There has been some desultory work since, more especially since 1920, but Calico is about the last of the old districts in which no attempt has been made to reopen and further develop the mines in depth below the rich ores, yet geologic and economic conditions warrant the expenditure of capital in resuscitating operations.

A bill for the regulation and control and licensing of persons, firms or corporations engaged in the business of sampling, concentrating, purchasing or receiving for sale ores, concentrates or amalgams bearing gold and silver, gold dust, silver or gold bullion, nuggets or specimens, to quote a State press bulletin, was passed by the last Legislature and became effective July 24, 1925. An annual license fee of $100 is issued only to bona fide residents of California, and then with a bond of $3,000. Records must be kept and be open to State inspection. Violations of the act may lead to fines and imprisonment.

Colorado.—According to reports of four District Inspectors to the Commissioner of Mines, the State as a whole registers more activity than in some time and the indications for 1925 to maintain this rate or increase were good. By September, many inactive silver producers in Colorado were reported as about to be reopened.

The Cripple Creek district is promising well at depth, to 3,000 feet, and the output is at the rate of nearly $5,000,000 per annum. The Portland mine reports very satisfactory developments at its 2,700-ft. level and is now pushing work at a depth of 3,000 feet. The company is treating $5 to $34 ore, mostly the former grade, but the cost of production, capital expenditure, and development do not leave much profit at present. The Cresson is doing better all the time and is making a profit equal to $700,000 a year. The orebodies under the seventeenth level are proving larger than expected. Some old properties in the district are to be reopened.

In the Telluride district the Smuggler Union and Tomboy, and in the Eureka district the Sunnyside mines, continue to treat about 18,000 tons of ore each per month. Gold and silver are produced as well as copper and lead. At Leadville the Jonny mine continues to produce rich gold ore and the Derry Ranch dredge is in operation.

Idaho.—Gold is found in practically all parts of this State, according to the State Inspector of Mines. It occurs commonly in quartz, also associated with base metals. A large proportion of the gold is recovered by placer operations, but most of the gravels that could be hydraulicked are exhausted, though considerable dredging ground remains. Silver is also widely distributed in Idaho, but mostly associated with base metals, so its production fluctuates with the production of the latter. The State also published several instructive bulletins on mineral deposits and the relation of mining districts to certain geologic conditions.

Nevada.—Conditions and production in this State were satisfactory and should continue so, aided by base-metal producers. Of the precious metals the silver districts of Comstock, Rochester, and Tonopah were busy. Tonopah is an important silver district, and also produces a little gold. The annual rate of production is $3,000,000 and is likely to be continued. Development is generally satisfactory, to a depth of below 2,000 feet in one mine. Early in 1925, gold was found at Gilbert, twenty-nine miles west of Tonopah, and a mild boom started, but little is heard of the place at this writing. Several small shipments of rich ore were made. The ore is described as a quartz breccia, in rhyolite.

New Mexico.—Press dispatches early in the year reported the discovery of great quantities of placer gold near Hillsboro in Sierra County, but nothing has been heard of it since.

South Dakota.—In this State the Homestake company continues its gold yield to $6,000,000 a year and is one of the world's leading producers. The company is expanding its operations and acquired quicksilver and antimony claims in the state of Idaho.

Utah.—This State in particular of the Western States is prospering as the result of the higher prices for all metals, and the Fall meeting of the American Institute of Mining and Metallurgical Engineers, which was held at Salt Lake City and attended by more than 400 representative engineers, was a happy and instructive convention.

Washington.—According to a graph accompanying a paper by L. O. Howard on metal mining in northeastern Washington in the *Mining Journal-Press* for June 13, 1925, the production of all metals, including gold and silver has steadily increased since the post-war slump of 1921. The silver is mostly recovered as a by-product. The straight gold mines are in the Republic district of Ferry County. Mr. Howard concludes that in spite of the difficulties of lack of capital, lack of adequate transportation, lack of correctly designed plants, and incorrect and illogical geologic prognostications, some fine results are being obtained in this region, which justifies the belief that some day it will be a steady and profitable metal producer. It has also been stated that if the mines of the Republic gold and silver district of Washington were consolidated and more capital were available, with cheaper power and the metallurgical problems solved, the district should respond. It has produced nearly $10,000,000 in gold and silver and three mines are being operated to-day.

References.—In addition to the publications issued by State and Federal Governments on various phases of gold and silver, several textbooks made their appearance during 1925. Brief notice of these is as follows:

American Institute of Mining and Metallurgical Engineers, Vol. 72, is devoted to mining and sampling. A number of papers describe the mining and sampling of gold ores, gold-silver ores, and silver ores, and these are summarized and conclusions drawn therefrom.

Richards, R. H., and Locke, C. E., with Bray, J. L.—*A Text-book of Ore Dressing.* A revision of the work of the same title published sixteen years ago.

Spurr, J. E., and Wormser, F. E.—*Marketing Metals and Minerals.*

The first work published on this subject. Among the chapters covering all metals, ores and nonmetallic minerals of industrial importance, are two devoted to gold and silver.

IRON AND STEEL

By Edwin F. Cone
Associate Editor of the Iron Age

Iron and Steel Output.—Early last year, when the usual estimates of the probable trend for the year were being made, predictions were to the effect that the steel output for 1925 would probably stand at a figure half way between the 1923 and 1924 totals. The 1923 steel ingot production at 43,485,665 tons was a record for all peace time years—and not far from the war record of 43,619,200 tons in 1917. Actual data for the 1925 production will not be available until later this year, but conservative estimates place the total ingot output at 44,100,000 gross tons, exceeding any previous war or peace time years. If the steel casting production is added to this, the country's total steel output for 1925 will approximate 45,400,000 tons.

Pig Iron.—A different story must be related regarding pig iron. The 1925 production will in no way parallel that of steel. Conservative estimates place last year's total of coke pig iron, as collected by *The Iron Age* each month, at 36,550,000 tons. In rank among the years, both war and peace-time, this total including charcoal will be about sixth. The record year was 40,361,146 tons in 1923. In the order of relative magnitude the six years stand as follows:

1923	40,361,146
1916	39,434,797
1918	39,054,644
1917	38,621,216
1920	36,925,987
1925	36,750,000 *

Scrap in Steel Making.—The gradual decline in the country's pig iron output with reference to steel is explained in only one way. Ever since the war there has been an increasing use of scrap iron and steel in steel furnace charges. The large accumulation of such material during the war was an incentive. As the years since the war have passed and as it has been found that scrap steel can be used in place of a certain amount of pig iron in the furnace charge—thus reducing the cost—the practice has expanded until today it is quite universal in all open-hearth steel making plants. Before the war the pig iron output was close to or exceeded the total steel; today there is a wide difference, that for 1925 of approximately 9,000,000 tons being the largest on record.

Steel for Building.—In building of all kinds, last year broke all records. According to the leading authority in this field, the Engineering-News Record, "the greatest building year in history" drew to a close with December, 1925, "without evidence of a let-up in the boom." The trend since 1924 has been definitely upward. Total construction for the year 1925 will approximate $7,490,000,000, breaking all records for the construction industry. Of the total $1,880,000,000 represents construction other than buildings. Steel, in greater or less degree enters into most of this work. The 1925 total of $7,490,000,000 compares with $3,621,000,000 in 1920—a gain of over 100 per cent.—and with $5,483,000,000 in 1923 and $6,012,000,000 in 1924. At least a $7,000,000,000 year is indicated for 1926, says the same authority. Buildings contemplated already amount to $5,500,000,000, with another $1,500,000 likely for work other than buildings.

Tin Plate.—In tin plate American output and consumption made a new record in 1925. Indications at the close of the year were that the heavy production of 1924 could be surpassed by at least 10 per cent. With exports less than in 1924, the American consumption was therefore strikingly larger. More and more has the canning industry expanded with new fruits and vegetables included in the program.

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* Estimated.

Pig Iron Imports.—Lower relative production of pig iron with reference to steel is not entirely explained by the greater use of scrap in steel making. A large factor last year was the gradually expanding receipts of foreign pig iron, particularly along the Eastern seaboard. The 1925 imports approximated 400,000 tons or about double those of 1924. Most of this iron came from India, but England, Scotland, Germany and Holland contributed large quantities. At the close of the year only 10 out of 44 merchant furnaces along the Atlantic seaboard were active. These conditions constitute a menace to the American pig iron industry on the Eastern seaboard.

Iron and Steel Exports.—Signal as has been the achievement of the American steel industry at home both last year and during the last two or three years, its record in international trade has not been one to be proud of. Ever since 1920, when American steel exports reached the largest volume in their history because our market was the only one which could then supply the world's needs, sales to foreign consumers have been gradually declining. Last year total exports of American iron and steel were the smallest since the war—in the face of record making production at home. The following table presents the picture clearly in gross tons per month:

1925	137,600 *
1924	145,900
1923	162,100
1922	161,500
1921	181,000
1920	392,400
1913	242,300

The story of imports is also interesting as well as unfavorable economically—namely too much foreign steel and iron entering the country. The record for 1925 established a new one since the war for large volume of foreign iron and steel used by American consumers. As the year drew to a close, with data for 10 months available, the estimates were that the total steel imports for 1925 would approximate 70,000 tons per month.

Alloy Steels.—In 1909 almost no alloy steel was made in the United States. For every ton of alloy steel produced in that year, 131.6 tons of total steel was made. Increase in demand for alloy steel since then has been steady but rapid until in 1924, the latest data available, for every ton alloy steel made only 18.7 tons of total steel was produced. In other words in 1909 the country's alloy steel output was only 0.75 per cent. of the total, but in 1924—a lapse of only 15 years—this percentage had increased to 5.35 per cent., the largest on record. For the second year in succession over 2,000,000 tons were produced. The expansion since 1909 was seven-fold—"a truly notable achievement."

To-day the wonderful properties of alloy steels, as well as the discovery of new properties of plain carbon steels, has been made possible by the perfection of heat-treating processes and equipment. Only a few years ago a few American steel treaters and metallurgists formed a small society in Chicago and held a convention and exhibition. This was in the fall of 1919. To-day that society, now known as the American Society for Steel Treating, has expanded to a membership of over 3,500 and to an influence hardly second to some of the oldest scientific societies in the country. Heat treating methods have been put on a scientific basis and the benefits to industry are manifold.

Iron and Steel Capacity.—One of the interesting developments of the year just closed is the question of our steel making capacity. During the year a prominent head of one of the large companies questioned the published estimates of our capacity which vary according to their source. That of the American Iron and Steel Institute was pointed to as altogether too high while the objector's own figure was criticized as too low. The estimate of The Iron Age at 54,000,000 tons per year for ingots is about half way between the two extremes mentioned.

The result of this discussion and

* Estimated.

difference of opinion has been a decision by the board of directors of the American Iron and Steel Institute to investigate thoroughly the capacity of the country. A committee has been appointed which is to report on not only steel ingots but also steel castings and pig iron.

Prices.—Financially, the past year has not been as prosperous as others. The price levels of leading commodities have been relatively low so that, despite a year of large production, the companies' profits have not been heavy. This is particularly true of pig iron, especially that made by merchant furnaces. Competition from foreign iron as well as the sales of steel-making companies having excess pig iron capacity in times of lean order books for steel have been cogent factors in holding down prices. As the year drew to a close pig iron prices had advanced measurably, due partly to better demand and to higher-priced coke, caused by the anthracite strike. In finished and rolled steel, prices had also improved by the end of 1925. These advances, however, had little effect on the year's profits, since they applied mostly to this year's business. With price advances conservatively made in the closing weeks of 1925, the new year started out with favorable prospects for better profits than in the preceding one.

Electric Steel.—This somewhat disconnected but general review of the industry would not be satisfactory unless some mention were made of the American electric steel industry. From small beginnings about 15 years ago, when almost no steel was made in electric furnaces, the industry has developed very rapidly until today the American stands preëminent among the nations recognized as leaders in the industry.

Stainless Steel and Iron.—Probably the most outstanding development of a technical nature from both a practical and metallurgical standpoint, has been the progress in stainless steel and rustless iron. Stainless iron has limitless applications because of its lower carbon content, under 0.10 per cent., rendering it exceedingly malleable. Also, called rustless iron, it can be made into sheets, wire, plates and countless other forms and can be substituted for any material which soon fails because of rust. The only drawback to its general use is its price. It is now too expensive, as made by processes developed up to this time, but its ultimate cheapness is sure to materialize. It has the appearance of nickel plating but it never changes. It requires but little imagination to picture the possibilities of its general use.

Electrolytic Iron.—An interesting commercial development of 1925 was the establishing of a new plant at Niagara Falls, N. Y., for making electrolytic iron. The process was described in *The Iron Age*, September 10, 1925. It uses an anode of cast iron, cast directly at the blast furnace, and a cathode in the form of a grease-coated steel mandrel which revolves rapidly while deposition is proceeding. The electrolyte is ferrous chloride. The capacity of the plant will ultimately be about seven tons per day. The pure iron will be used for oil cans, cartridges, door knobs, grease cups, vacuum bottles, disks, etc., etc., and particularly iron tubes and sheets.

Nickel.—An outstanding feature of the past year has been developments in the nickel industry. When the naval disarmament program was adopted, the demand for armor plate vanished and with it about 60 per cent. of the sales of nickel per year. A new research department was organized, which, after intensive work, has developed new uses for the metal. The result has been a resuscitation of the industry.

Permanent Molds.—Mention should also be made of the progress in permanent molds in the foundry industry and of centrifugal casting. Quite rapidly are schemes developing for making iron and some other castings in permanent or metal molds, without the use of sand. A large future is opening up in this field. In centrifugal castings, large quantities of iron pipe are now being produced by the DeLavand and the sand-spun processes, both comparatively recent developments.

ZINC

By Walter Renton Ingalls

Consulting Engineer, New York

Ore.—The outstanding feature of the world's zinc industry in 1925 was the scarcity of ore. Australian production having been diminishing, and having been preëmpted by the Electrolytic Zinc Co. of Australia and by the smelters of Great Britain, Belgian smelters were constrained to look elsewhere for their ore supply, and bought largely from British Columbia, from Mexico, and even in the Tri-State district of the United States, where they entered into direct competition with American smelters. The supply of spelter in Europe has been insufficient for several years and America has been exporting a large quantity in that direction. From the standpoint of American industry it is preferable to export spelter rather than ore; but Belgian smelters, in their desire to keep their plants going at full capacity, could afford to buy American ore at no profit, relying upon other ores for their proper margin, and thus they were able to present a competition that American smelters could not easily meet.

Smelting.—Meanwhile the American zinc smelting industry continued to suffer from the over-built condition in which it has been since the war. At the middle of 1925 there were in the United States six zinc smelteries idle, with an aggregate of 20,984 retorts. Twenty-three were in operation, with an aggregate of 118,906 retorts, with an average of 69 per cent. of their capacity then in use. The American capacity for electrolytic zinc production was then about 90,000 tons per annum, which will be increased to 120,000 tons soon after the end of this year. The total capacity of active plants in the United States at the middle of 1925 was for the production of 780,000 tons of zinc per annum, soon to be about 800,000 tons. The actual production in 1925 was about 47,000 tons per month. Such partial operation, of course, produced an adverse effect on the cost quotient in respect of overhead, which is equivalent to saying that the American zinc industry as a whole is overstaffed.

The correction of this unhealthy economic situation would naturally be consolidation and concentration of production in a relatively few plants. Such a plan is impossible, however, in this industry, owing to divergence of interests and the extent to which the zinc smelteries, great individually as they are, exist as mere appendages of far greater enterprises. Elimination of surplus capacity can be brought about therefore only by the natural process of competition and the survival of the fittest. As a consequence of such constraint all smelters operated on narrow margins, and not a few were in red ink. The only concerns that are in a comfortable position are those possessing a completely integrated business, i.e., producing and beneficiating their own ore, and perhaps manufacturing products from their metal.

Attitude of Labor.—Another consequence of the severity of competitive conditions is the frantic efforts that are made by everybody to improve methods. In this effort an obstacle is the attitude of labor, which tries to seize for itself the benefit for any improvements or else opposes improvement for the sake of its own ease in working.

The electrolytic producers are immune from such obstacles, for by their process the labor requirement per ton of ore is much less than in the distilling process and the labor requirement is so organized as to be under better technical control. For this reason, among others, electrolytic production increases and thereby adds to the competition that the distillers have to meet. For brass manufacture electrolytic zinc is now especially favored, and the export trade is largely in that grade of metal.

Processes.—Electrolytic zinc is now being produced, or is going to be produced in several small works in Europe.

In American and in Australian experience an electrolytic zinc plant must be of large size in order to be profitable, but the lower wages for labor in Europe, and some other favorable factors, may lead to the enjoyment of a different experience there. In distilling, or smelting, as it is commonly called, the average cost in Europe appears to be about the same as in the United States, but the European employs many more men per ton of ore. In Germany this has been to some extent the means of affording employment during the immediate post-war period, and as industry revives more economy of labor and at the same time higher wages may ensue. Both in Belgium and Germany strenuous efforts toward metallurgical improvement are being exerted. An interesting feature of 1925 has been that vigorous steps have been taken toward increasing zinc smelting in Great Britain. Another interesting event was the negotiation by an American banking house for an important interest in Giesche's Erben, which is one of the large zinc smelters of Upper Silesia and owns the most important zinc mine in that province. The transfer to Poland of a part of Upper Silesia included all of its zinc smelteries and practically all of its zinc mines, since which time they have passed extensively into French and other foreign hands.

Conditions.—While the metallurgical division of the zinc industry was troubled in 1925 the mining division was quite prosperous. The price for zinc was high in the early part of the year. Around mid-year it fell off. In the autumn it rose to a higher level than for a good many years. Zinc mines then became very profitable.

LEAD

By Allison Butts
Professor at Lehigh University

Status of the Industry.—The lead industry is enjoying a period of prosperity. Its position is undeniably far stronger than that of copper, zinc, gold, or silver, and has been for several years. The year 1925 has been one of higher prices with continued high production levels for all the leading non-ferrous metals in the United States; but for lead the increase in price was added to a figure already well above normal, which is not true in the case of the other metals. The price of lead at New York in 1925 will average about 9.1 cents per pound, as against 8.1 cents in 1924. The 1913 price was only 4.4 cents; if that figure be increased by 60 per cent., the average commodity price increase since 1913, we arrive at a figure of 7.0 cents per pound which in a sense may be regarded for comparison as a "normal" present price for lead. As succinctly expressed by J. R. Finlay, the world is now using one-quarter more lead than in 1913 and paying a relative price one-quarter greater. Mr. Finlay's statement was made at a meeting of the New York section of the Mining and Metallurgical Society of America (*Eng. and Min. Jour.-Press*, Vol. 120, pp. 747-8), held on Oct. 29, 1925, at which there was a symposium to which was given the title of "Lead—The Precious Metal." The title was borrowed from that of a book by O. C. Harn that appeared in 1924, and its use for the subject of the meeting suggests in a figurative way the position into which the metal has grown.

Demand, Consumption, and Uses.—What are the chief causes of the high price for lead, which is now definitely established above the price of zinc whereas its level until a few years ago was always below that of zinc, and which is accompanied by a high rate of production? The causes are twofold—a strong demand and a more difficult supply, the supply being adequate only by reason of a price favorable to large production. R. M.

Santmyers notes in his review of the lead industry appearing in *The Mineral Industry,* Vol. 33, October, 1925, that of the six major lead districts on which the world has relied for the bulk of its metal, three regions have passed into a stage that presages waning supplies, this being true of Australia, of the Coeur d'Alene district of Idaho, and particularly of Spain. Lead producers at the meeting mentioned above expressed a confidence that new lead districts would be developed to supplement and supplant the old as the need arises, but none could actually name a new district to count upon. The lead industry has long been a well-stabilized one, practically free from the fluctuating periods of inflation and depression that have characterized the other metals, and the producers, alive to the desirability of maintaining such a poise, have thus far succeeded well in so doing.

Commercial Uses.—The strong demand for lead is due to activity in the leading lines of lead consumption. The lead pigments—chiefly white lead, but including also considerable amounts of red lead, litharge, orange mineral, and others—have always constituted the largest use of lead. Although relatively lead has been losing some ground in paint manufacture, the building boom has kept up the demand from this source so that in total amount consumed lead-pigments have more than held their own. There was possibly some decline in this line in 1925, as one of the leading manufacturers stated that his sales of white lead in 1925 were 15 per cent. smaller than in 1924. Building has also taken larger amounts of lead for pipe and other purposes.

The real benefactors of the lead industry have been the makers of storage-batteries and the makers of cable-covering. The former, meeting the great demand from the automobile and the radio industries, are taking twice as much lead as a few years ago and now consume almost as large a proportion of American lead as do the paint manufacturers.

Cable-covering is a good third in point of lead consumption and has been increasing even more rapidly than storage-batteries. Most of the other uses of lead have remained about stationary. In actual figures, as compiled by the American Bureau of Metal Statistics, lead was consumed in the United States in 1924 in the following amounts: for pigments, 184,000 short tons; for storage-batteries, 170,000 tons; cable-covering, 138,000 tons; bearing metal, solder, and calking, 88,500 tons; building, 83,000 tons; foil, 35,000 tons; all other uses, 123,000 tons; total, 811,500 tons.

Production.—The world's output of lead in 1925 will be a little larger than that of 1924, which in turn was easily the largest annual output ever made. The 1925 production promises to exceed 1,600,000 short tons; that of 1924 was about 1,540,000 tons, and of 1923 (the next largest), 1,367,000 tons. All the leading producing countries except Spain shared in the increase in 1925, but production in most of the minor countries declined. Figures have been issued by the American Bureau of Metal Statistics giving the approximate outputs of the principal countries for the first nine months of the year; increasing these by one-third to arrive at a twelve-month basis for comparative purposes, we have the following figures for 1925 outputs, together with the figures for 1924: United States, 630,000 tons in 1925 against 586,000 tons in 1924; Mexico, 201,000 tons against 181,000 in 1924; Australia, 160,000 tons against 146,000; Spain and Tunis, 126,000 tons against 172,000; Canada, 122,000 tons against 90,000.

The rapid growth of lead mining in Canada, due almost entirely to the activities of the Consolidated Mining & Smelting Co. in British Columbia, is one of the features of the lead industry of the last three years. The most promising new district seems to be the Mount Isa lead-silver field in Queensland, reports from which in 1925 continued to justify the hope that it would become one of the world's large producers, though perhaps not rapidly enough to more than offset the decline in the Broken Hill field of Australia.

Copper and Lead.—Production of copper has grown even more rapidly than that of lead in recent years, and the world outputs of these two metals are now practically on a par. Thus we have two metals in equal demand, but with copper selling at 14.1 cents per pound and lead at 9.1 cents.

The chief reason for this lies of course in the costs of production, which E. P. Mathewson recently quoted roughly as about 4 cents a pound for lead and 12 cents a pound for copper. It is interesting to note that the pre-war difference in price between lead and copper was about 10 cents a pound instead of only 5 cents.

Progress in Lead Metallurgy.—New departures in metallurgy are a matter of slow development rather than sudden change. Even when looking back a few years reveals a distinct difference in methods, the change in a single year may not be evident. Arthur B. Parsons wrote early in 1925 (*Eng. and Min. Jour.-Press*, Vol. 119, pp. 876-83) an account of a tour through Western lead smelters, and the new things that he noted were nearly all the result of developments that have been in evidence for several years. Chief among them are: (1) increased use of mechanical handling devices; (2) improved roasting, made necessary especially by the greater zinc content now met with in lead ores, and done in most plants in two stages, the final roast being on Dwight-Lloyd sintering machines, taking the sulphur below 4 per cent., and the preliminary roast either in multiple-hearth shaft roasters or on Dwight-Lloyd machines; (3) more thorough smoke treatment, especially with more and improved Cottrell apparatus; and (4) special plants for recovery of by-products, particularly arsenic.

Perhaps the most important recent development in lead metallurgy is in the use of selective flotation, separating zinc from lead and recovering both metals, thereby making the increasing zinc content of Western lead ores an asset instead of a total liability. Encouraged by the success of the Consolidated Mining & Smelting Co. with their Sullivan mine, other large companies are making a definite bid for complex zinc-lead ores such as were formerly fought shy of. During 1925 a flotation plant was installed at Berkeley, Calif., to treat lead-zinc-silver ores on a custom basis. A 250-ton flotation plant is planned for treating complex ores at Leadville, Colo.

Processes. — Another significant trend is the increasing interest in hydrometallurgical methods for lead. The Tintic Standard mill at Harold, Utah, and the Tainton process plant at the Bunker Hill & Sullivan mine at Kellogg, Idaho, both leaching lead with brine, were joined in 1923 by a new brine-leaching plant of the Combined Metals Co. at Bauer, Utah. The last named has been described by Arthur B. Parsons (*Eng. and Min. Jour.-Press*, Vol. 119, p. 55). Testing of the Coolbaugh sulphating process was also described by Parsons (*loc. cit.*).

The Chief Consolidated Mining Co. is successfully treating lead ore by an oxide volatilization process at Eureka, Utah, and a number of other plants are working alone this line with semi-commercial units.

In lead refining the Harris process and the Colcord process are recent developments of importance. These are substitutes for the usual furnace process of softening lead prior to desilverization, both employing the addition of certain chemical refining agents to the molten lead at low temperatures. Copper is drossed by the addition of sulphur, and caustic soda is then added. The Harris process also utilizes niter-cake for a further separation, employing special apparatus. The Colcord process is somewhat less pretentious, but has the advantage of not requiring extra apparatus. Advantages of these processes over furnace softening are saving of time, saving of fuel, saving of metal, and separate recovery of by-products.

The Betts process of electrolytic refining of lead continues to be successful, and the plant at Trail, B. C., has been enlarged, so that during 1925 it was turning out 9,000 to 10,000 tons of lead per month.

STATISTICS OF MINERAL PRODUCTION

By Frank J. Katz

Engineer in Charge, U. S. Bureau of Mines (1919-1924)

WORLD'S PRINCIPAL MINERAL PRODUCTS

(In metric tons of 2204.6 pounds)

Compiled by R. M. Jones

Division of Mineral Resources and Statistics, U. S. Bureau of Mines

Mineral	1919	1920	1921	1922	1923	1924
Aluminum	[a] 127,800	[a] 133,400	[a] 74,900	[a] 91,800	[a] 138,000	[b] 188,400
Asphalt	369,000	556,000	661,000	774,000	922,000	1,096,000
Coal	1,172,900,000	1,319,700,000	1,134,600,000	1,225,500,000	1,359,900,000	1,354,300,000
Copper	994,000	959,000	557,600	848,600	1,229,500	1,326,000
Lead	862,000	927,000	885,000	1,072,000	1,190,000	1,272,000
Petroleum (barrels)	555,795,000	688,804,000	765,903,000	858,909,000	1,018,736,000	1,012,924,000
Phosphate rock	4,357,000	6,935,000	5,342,000	6,093,000	6,870,000	7,400,000
Pig iron	51,855,000	61,279,000	36,369,000	53,916,000	68,458,000	65,805,000
Steel [c]	58,028,000	68,223,000	43,169,000	64,111,000	76,301,000	74,756,000
Tin [b]	123,500	121,800	105,700	125,300	126,200	134,900
Zinc	659,000	722,000	476,000	713,000	946,000	1,007,000

[a] Figures as given by the Bureau of Metal Statistics.

[b] Figures of Metalgesellschaft.

[c] Figures of *Iron Trade Review* and Amer. Bureau of Metal Statistics.

MINERAL PRODUCTION OF THE UNITED STATES, 1919-1924

DIVISION OF MINERAL RESOURCES AND STATISTICS, U. S. BUREAU OF MINES

PRODUCT		1919	1920	1921	1922	1923	1924
Metallic:							
Aluminum [a]	pounds	(a)	(a)	(a)	(a)	(a)	(a)
Antimonial lead [b]	short tons	13,874	12,535	10,064	8,075	14,190	20,787
Antimony [c]	"	2,501	2,785	1,589	1,441	2,170	2,763
Bauxite	long tons	376,566	521,308	139,550	309,600	522,690	347,570
Cadmium	pounds	99,939	129,283	68,501	131,590	183,816	129,328
Chromite	long tons	5,079	2,502	282	355	227	288
Copper [d]	pounds	1,286,419,329	1,209,061,040	505,586,098	950,285,947	1,434,999,962	1,634,249,192
Gold	troy ounces	2,918,628	2,476,166	2,422,006	2,363,075	2,502,632	2,511,243
Iron, ore	long tons	56,372,784	69,281,341	26,652,528	50,612,620	69,811,472	52,083,375
Iron, pig [e]	"	30,549,869	36,323,035	16,287,246	28,094,018	38,941,196	31,561,373
Lead (refined)[d]	short tons	424,433	476,849	398,222	468,746	543,841	566,407
Manganese ore [f]	long tons	55,322	94,420	13,531	15,682	32,269	58,348
Manganiferous ore [g]	"	433,733	767,664	97,099	625,659	1,433,899	898,468
Nickel	short tons	511	365	111	208	100	191
Platinum and allied metals	troy ounces	45,109	41,544	56,370	57,718	49,797	66,007
Quicksilver	flasks	21,415	13,392	6,339	6,375	7,937	10,061
Silver	troy ounces	56,682,445	55,361,573	53,052,441	56,240,048	73,335,170	64,792,216
Steel [h]	long tons	34,671,232	43,132,934	19,783,797	35,602,926	44,943,696	37,931,939
Tin (metallic equivalent)	short tons	56	22	4	1	2	7
Tungsten ore (60 per cent. concentrates)	"	327	216	....	....	241	374
Uranium and vanadium ores	"	14,509	35,076	8,540	929	2,025	( )
Zinc [d]	"	452,272	450,045	198,232	353,274	508,335	515,831
Non-Metallic:							
FUELS:							
Coal: Bituminous [i]	short tons	465,860,058	568,666,683	415,921,950	422,268,099	564,564,662	483,686,538
Penn. anthracite	long tons	78,653,751	79,998,437	80,779,867	48,824,127	83,338,401	78,506,127
Coke	short tons	44,180,557	51,345,043	25,287,622	37,124,012	56,977,534	44,269,605
Natural Gas	M. cubic feet	739,915,781	798,210,000	662,052,000	762,546,000	1,006,976,000	1,141,521,000
Natural gas gasoline	gallons	351,535,026	384,743,922	449,934,402	505,832,000	816,226,000	933,861,000
Petroleum	barrels	378,367,000	442,929,000	472,183,000	557,531,000	732,407,000	713,940,000

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[a] Bureau of Mines not at liberty to publish figures of quantities produced. The American Bureau of Metal Statistics gives production for years listed as follows in metric tons: 1919,58,100; 1920, 62,600; 1921, 24,500; 1922, 33,600; 1923, 58,500; 1924, 65,500.

[b] From domestic and foreign ores.

[c] From all sources.

[d] From domestic ores.

[e] Figures of American Iron and Steel Institute. Represent pig iron manufactured.

[f] Ores containing 35 per cent. or more Mn.

[g] Ores containing 5 to 35 per cent. Mn.

[h] Figures of American Iron and Steel Institute.

[i] Includes brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania.

MINERAL PRODUCTION OF THE UNITED STATES, 1919-1924 *(continued)*

Product		1919	1920	1921	1922	1923	1924
STRUCTURAL MATERIALS:							
Cement	barrels	86,141,488	97,079,200	96,046,549	118,590,644	137,183,792	147,466,010
Lime	short tons	3,330,347	3,570,141	2,532,153	3,639,617	4,076,243	4,072,000
Sand and gravel	"	68,748,998	79,875,462	78,564,649	93,098,497	137,897,195	154,060,164
Slate	"	409,600	468,700	411,500	607,680	707,100	727,700
Stone	"	65,539,000	78,527,000	63,538,740	80,211,560	103,318,660	103,184,120
ABRASIVE MATERIALS:							
Corundum and emery	short tons	2,601	2,327	305	1,468	2,286	2,195
Diatomaceous earth and tripoli	"	66,934	102,155	67,474	74,966	92,915	91,639
Garnet	"	4,944	5,476	3,048	7,054	9,006	8,290
Grindstones and pulpstones	"	46,865	53,484	26,340	26,524	46,570	38,184
Oilstones, scythestones, etc.	"	1,463	1,144	831	1,016	1,223	1,056
Pumice	"	36,051	41.838	37,108	45,262	56,575	43,651
CHEMICAL MATERIALS:							
Arsenious oxide	short tons	6,029	11,502	4,786	10,027	14,271	14,453
Borates	"	66,146	120,320	50,000	85,220	122,730	100,780
Bromine	pounds	1,854,971	1,160,584	711,953	1,005,174	842,352	2,033,804
Fluorspar	short tons	138,290	186,778	34,960	141,596	121,188	124,979
Gypsum	"	2,420,163	3,129,142	2,890,784	3,779,949	4,753,448	5,042,629
Phosphate rock	long tons	2,271,983	4,103,982	2,064,025	2,417,883	3,006,706	2,867,789
Pyrites	"	420,647	310,777	157,118	169,043	181,628	160,096
Salt	short tons	6,882,902	6,840,029	4,981,154	6,792,849	7,130,713	6,803,115
Sulphur	"	678,257	1,517,625	954,344	1,343,624	1,618,841	1,537,345
MISCELLANEOUS:							
Asbestos	short tons	1,161	1,648	831	67	227	300
Asphalt	"	702,973	898,993	920,632	1,132,937	1,395,890	1,720,823
Barytes, crude	"	209,330	228,113	66,369	155,040	214,183	196,332
Clay, raw	"	2,275,100	3,116,212	1,746,746	2,647,700	3,434,660	3,691,119
Feldspar, crude	long tons	63,441	135,551	91,865	117,127	145,004	204,772
Fuller's earth	short tons	106,145	128,487	105,609	138,944	149,134	177,994
Graphite, Amorphous	"	3,379	4,694	1,842	2,200	4,056	4,071
Crystalline	pounds	8,086,191	9,632,360	1,189,523	1,849,766	3,964,900	1,800,325
Magnesite, crude	short tons	156,226	303,767	47,904	55,790	147,250	120,100
Mica, scrap	"	3,258	5,723	2,577	6,641	8,054	4,709
sheet	pounds	1,545,709	1,683,480	741,845	1,077,968	2,063,179	1,460,897
Mineral waters	gallons sold	38,607,280	36,218,260	34,781,238	38,492,881	44,430,998	(j)
Peat	short tons	69,197	73,204	30,406	60,680	61,355	55,469
Potash (K_2O)	"	45,728	41,444	4,408	11,313	19,281	21,880
Sand, glass	"	1,827,409	2,165,926	1,280,359	1,768,549	2,034,958	2,169,899
Silica (quartz)	"	63,332	68,190	11,252	10,653	20,601	23,761
Talc and soapstone	"	184,843	210,635	121,986	198,684	196,692	203,821
Zinc and lead pigments	"	155,648	143,244	102,463	162,815	163,240	173,859

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[j] Data not available.

MINERAL PRODUCTION OF THE UNITED STATES, BY STATES, 1919-1924

DIVISION OF MINERAL RESOURCES AND STATISTICS, U. S. BUREAU OF MINES

STATE AND PRODUCT	1919	1920	1921	1922	1923	1924
Metallic:						
Copper (smelter output, in pounds fine):						
Alaska	56,534,992	66,093,924	76,808,114	59,900,579	68,648,368	77,053,492
Arizona	536,515,368	552,988,731	155,165,656	428,200,634	615,493,561	672,365,115
California	23,548,698	11,822,028	15,906,883	20,440,430	27,042,835	49,433,716
Colorado	4,892,558	4,282,616	6,592,598	3,635,916	4,343,418	4,158,312
Idaho	3,966,655	1,922,116	1,971,623	3,504,944	3,664,079	3,148,519
Michigan	177,594,135	153,483,952	100,918,001	122,545,126	137,691.306	145,333,227
Montana	176,289,873	177,743,747	49,471,206	165,341,414	224,353,764	249,322,394
Nevada	64,683,734	55,580,322	15,129,116	20,398,611	63,495,928	77,281,479
New Mexico	60,377,320	52,159,751	18,076,909	29,127,329	57,521,171	78,145,629
Tennessee	15,629,454	16,727,803	15,084,294	14,226,232	18,721,932	18,251,996
Utah	143,836,304	110,357,748	45,831,959	79,665,563	210,118,291	256,531,349
Other States	22,550,238	5,898,302	4,629,739	3,299,169	3,905,309	3,223,664
Gold (fine ounces):						
Alaska	481,984	412,915	386,927	345,630	314,960	303,553
Arizona	222,965	240,032	160,498	169,704	296,437	226,385
California	841,638	716,477	728,590	712,157	651,369	633,021
Colorado	495,810	363,218	355,459	324,456	315,686	420,858
Idaho	34,085	22,668	26,229	22,891	35,764	27,085
Montana	116,918	91,802	83,476	73,443	85,145	95,815
Nevada	225,384	175,451	155,791	160,044	198,415	219,976
Oregon	53,029	49,714	39,454	23,728	23,631	27,622
Philippine Islands	41,119	61,756	60,705	73,[illegible]40	76,137	82,562
South Dakota	255,889	209,842	315,550	320,402	307,012	297,085
Utah	109,661	102,975	91,636	107,175	156,991	153,378
Other States	40,146	29,316	17,691	29,605	41,085	41,560
Iron Ore (long tons):						
Alabama	5,053,035	5,894,011	2,876,141	5,234,568	6,783,146	6,993,613
Michigan	15,438,930	17,510,742	7,283,492	10,453,578	14,174,468	12,350,755
Minnesota	36,000,626	39,453,173	17,811,325	28,768,960	44,348,296	31,902,085
New Jersey	404,428	431,567	58,589	90,359	307,733	65,197
New Mexico	225,039	274,219	110,528	118,038	205,218	189,371
New York	871,495	920,009	469,988	444,381	541,922	255,832
Pennsylvania	627,167	734,383	146,649	780,836	993,441	807,208
Tennessee	283,792	375,538	25,709	156,464	267,275	179,853
Virginia	305,096	320,924	74,021	30,971	155,977	89,792
Wisconsin	1,087,247	981,134	257,014	577,024	871,416	690,058
Wyoming	398,613	406,501	234,701	332,800	378,747	363,096
Other States	269,950	302.264	142,821	140,548	323,803	380,559

MINERAL PRODUCTION OF THE UNITED STATES, BY STATES, 1919-1924 (*continued*)

STATE AND PRODUCT	1919	1920	1921	1922	1923	1924
Iron, Pig (long tons):[a]						
Alabama	2,130,092	2,392,962	1,207,408	2,230,619	2,797,190	2,773,825
Illinois	2,558,213	3,280,875	1,612,033	2,625,244	3,839,063	2,600,864
Maryland	244,002	523,733	147,139	366,967	529,606	558,420
Ohio	7,102,627	8,533,470	3,799,613	6,484,162	9,347,960	7,415,039
Pennsylvania	12,276,585	13,983,134	6,252,766	9,731,788	14,804,620	11,068,979
Tennessee	190,514	283,207	19,479	123,907	250,982	137,991
Virginia	319,409	429,302	67,239	49,024	276,874	97,739
Other States	6,193,922	7,499,304	3,582,399	5,608,193	8,514,851	6,752,933
Lead (short tons):[b]						
Colorado	18,867	17,752	12,104	11,108	23,885	25,491
Idaho	89,091	117,191	99,707	91,487	127,797	123,709
Missouri	150,341	171,999	151,028	202,245	169,323	191,501
Oklahoma	49,984	68,494	46,902	67,436	59,602	56,017
Utah	65,102	64,006	51,872	63,130	104,678	119,318
Other States	54,440	54,905	33,674	46,283	68,751	65,964
Silver (fine ounces):						
Alaska	690,151	822,410	753,999	770,232	816,177	690,781
Arizona	5,702,911	5,431,637	2,519,200	4,627,738	7,376,832	6,390,684
California	1,153,614	1,654,653	3,606,708	3,095,480	3,689,856	3,598,733
Colorado	5,966,606	5,166,873	6,310,694	6,018,781	5,529,121	3,549,903
Idaho	5,933,076	7,364,785	7,200,319	5,791,413	8,019,977	8,036,358
Montana	15,012,258	13,263,356	9,677,020	9,682,304	14,226,272	13,688,728
Nevada	7,045,395	7,481,866	6,998,774	8,287,704	10,640,656	9,333,197
New Mexico	851,821	699,745	579,374	764,031	737,863	834,933
Texas	539,483	522,818	548,827	653,657	825,267	718,425
Utah	12,542,623	11,755,411	14,028,661	15,465,202	20,479,550	17,821,716
Washington	258,270	177,758	147,584	219,398	240,712	219,372
Other States	986,237	1,020,261	681,281	864,108	752,887	524,356
Zinc (short tons):[c]						
Colorado	18,610	24,395	1,180	11,629	27,076	29,603
Idaho	7,997	13,966	17	2,055	13,976	7,670
Kansas	47,636	61,073	36,994	56,225	100,969	105,392
Missouri	31,540	24,509	10,845	16,171	18,265	12,920
Montana	84,382	92,169	11,638	59,535	70,730	61,500
New Jersey	92,516	78,511	56,447	73,657	75,227	84,370
Oklahoma	178,410	219,727	121,372	209,682	242,421	269,137
Tennessee	23,247	19,217	9,692	15,568	15,900	14,376
Wisconsin	40,765	27,285	3,390	10,952	13,211	14,027
Other States	23,743	26,672	5,171	16,558	32,915	37,012

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[a] Figures of American Iron and Steel Institutes. Ferro alloys included.

[b] Primary lead smelted or refined in the United States from domestic ores, by sources of ore.

[c] Mine production.

MINERAL PRODUCTION OF THE UNITED STATES, BY STATES, 1919-1924 *(continued)*

State and Product	1919	1920	1921	1922	1923	1924
Non-Metallic:						
Portland Cement (barrels):						
California	4,642,679	7,098,084	7,302,784	8,711,515	11,001,910	11,615,379
Illinois	4,206,918	5,538,558	5,587,825	6,407,129	7,147,906	6,994,323
Iowa	3,573,278	4,849,228	4,590,920	4,272,432	5,732,470	5,624,466
Kansas	2,927,270	4,340,794	3,781,494	4,634,287	6,025,657	5,894,236
Michigan	4,675,244	4,891,457	5,777,533	6,243,805	7,619,792	9,259,781
Missouri	5,216,347	6,017,517	4,446,091	6,170,633	7,305,997	7,871,621
New York	4,383,579	5,885,058	5,294,188	5,922,706	6,990,174	7,571,856
Pennsylvania	25,325,173	28,269,314	27,628,598	33,276,093	38,157,482	40,849,602
Texas	2,249,735	2,562,208	2,668,741	3,628,756	4,178,895	4,565,983
Other States	23,577,712	30,571,027	31,763,875	35,522,628	43,299,955	49,110,862
Coal (short tons):						
Alabama	15,536,721	16,294,099	12,568,899	18,324,740	20,457,649	19,130,184
Arkansas	1,429,020	2,103,596	1,227,777	1,110,046	1,296,892	1,451,503
Colorado	10,323,420	12,278,225	9,122,760	10,019,597	10,346,218	10,444,098
Illinois	60,862,608	88,724,893	69,602,763	58,467,736	79,310,075	68,323,281
Indiana	20,912,288	29,350,585	20,319,509	19,132,889	26,229,099	21,480,213
Iowa	5,624,692	7,813,916	4,531,392	4,335,161	5,710,735	5,468,450
Kansas	5,224,724	5,926,408	3,466,641	2,955,170	4,443,149	4,247,733
Kentucky	30,036,061	35,690,762	31,588,270	42,134,175	44,777,317	45,147,204
Maryland	3,021,686	4,065,239	1,827,740	1,222,707	2,285,926	2,133,703
Michigan	996,545	1,489,765	1,141,715	929,390	1,172,075	831,020
Missouri	3,979,798	5,369,565	3,551,621	2,924,750	3,403,151	2,480,880
Montana	3,236,369	4,413,866	2,733,958	2,572,221	3,147,678	2,905,365
New Mexico	3,138,756	3,683,440	2,453,482	3,147,173	2,915,173	2,786,063
Ohio	35,876,682	45,878,191	31,942,776	26,953,791	40,546,443	30,473,007
Pennsylvania, bituminous	150,758,154	170,607,847	116,013,942	113,148,308	171,879,913	130,633,773
anthracite	88,092,201	89,598,249	90,473,451	54,683,022	93,339,009	87,926,862
Tennessee	5,213,205	6,662,428	4,460,326	4,876,774	6,040,268	4,556,555
Texas	1,680,656	1,615,015	972,839	1,106,007	1,187,329	1,147,011
Utah	4,631,323	6,005,199	4,078,784	4,992,008	4,720,217	4,488,157
Virginia	9,326,830	11,378,606	7,492,378	10,491,174	11,761,643	10,693,464
Washington	2,990,447	3,757,093	2,428,722	2,581,165	2,926,392	2,653,667
West Virginia	79,036,553	89,970,707	72,786,996	80,488,192	107,899,941	101,662,897
Wyoming	7,219,738	9,630,271	7,200,666	5,971,724	7,575,031	6,757,468
Other States	4,803,782	5,956,967	4,407,994	4,383,201	4,532,348	3,790,842

MINERAL PRODUCTION OF THE UNITED STATES, BY STATES, 1919-1924 (*continued*)

STATE AND PRODUCT	1919	1920	1921	1922	1923	1924
Coke (short tons):						
Alabama	3,380,771	4,013,891	2,534,039	3,799,865	4,654,075	4,541,058
Illinois	1,703,903	2,136,793	1,322,178	1,982,906	3,187,168	2,355,474
Indiana	3,702,180	4,553,697	3,091,263	3,995,505	5,042,614	4,272,435
Michigan	808,729	1,393,445	777,125	1,142,059	1,648,773	1,770,547
New Jersey	788,465	725,571	739,768	790,811	897,569	869,120
New York	751,067	1,040,192	746,916	1,494,992	1,783,948	1,600,669
Ohio	5,481,660	5,701,810	3,028,423	5,011,138	6,473,606	5,832,699
Pennsylvania	20,501,831	23,638,739	9,769,476	13,991,892	25,624,286	16,927,437
West Virginia	1,413,932	1,828,336	397,892	919,744	1,762,775	1,328,569
Other States	5,648,019	6,312,569	2,880,542	3,995,100	5,902,720	4,771,597
Natural gas (value):						
California	$ 9,366,000	$12,528,000	$16,496,000	$17,898,000	$22,787,000	$35,949,000
Kansas	5,492,000	7,164,000	7,382,000	9,123,000	11,249,000	10,087,000
Louisiana	4,045,000	5,768,000	5,460,000	5,849,000	6,022,000	7,626,000
New York	2,870,000	3,195,000	2,798,000	3,379,000	3,739,000	3,632,000
Ohio	20,389,000	21,587,000	19,216,000	24,181,000	25,675,000	24,203,000
Oklahoma	23,650,000	25,805,000	23,429,000	33,475,000	31,214,000	31,045,700
Pennsylvania	32,520,000	40,726,000	32,815,000	39,835,000	45,873,000	45,546,000
Texas	4,345,000	7,042,000	8,893,000	10,623,000	11,320,000	13,748,000
West Virginia	54,880,900	67,259,900	52,827,900	69,464,000	69,981,000	68,000,000
Other States	3,330,100	5,119,100	5,300,100	7,702,200	12,141,000	14,019,300
Petroleum (barrels):						
Arkansas	....	....	10,473,000	12,712,000	36,610,000	46,028,000
California	101,183,000	103,377,000	112,600,000	138,468,000	262,876,000	228,933,000
Illinois	11,960,000	10,774,000	10,043,000	9,383,000	8,707,000	8,081,000
Kansas	33,048,000	39,005,000	36,456,000	31,766,000	28,250,000	28,836,000
Kentucky	9,278,000	8,738,000	9,013,000	8,973,200	8,069,000	7,407,000
Louisiana	17,188,000	35,714,000	27,103,000	35,376,000	24,919,000	21,124,000
Oklahoma	86,911,000	106,206,000	114,634,000	149,571,000	160,929,000	173,538,000
Pennsylvania	8,137,000	7,438,000	7,418,000	7,425,000	7,609,000	7,486,000
Texas	79,366,000	96,868,000	106,166,000	118,684,000	131,023,000	134,522,000
West Virginia	8,327,000	8,249,000	7,822,000	7,021,000	6,358,000	5,920,000
Wyoming	13,172,000	16,831,000	19,333,000	26,715,000	44,785,000	39,498,000
Other States	9,797,000	9,729,000	11,122,000	11,436,800	12,272,000	12,567,000

VALUE OF THE MINERAL PRODUCTS OF THE UNITED STATES, 1919-1924

DIVISION OF MINERAL RESOURCES AND STATISTICS, U. S. BUREAU OF MINES

PRODUCT	1919	1920	1921	1922	1923	1924
Metallic:						
Aluminum	$ 38,558,000	$ 41,375,000	$ 10,906,000	$ 13,622,000	$ 28,305,000	$ 37,607,000
Antimonial lead [a]	1,513,968	1,963,255	870,059	844,993	1,950,370	3,376,713
Antimony [b]	410,164	473,450	157,629	156,000	338,500	596,800
Bauxite	2,201,747	3,247,345	889,800	2,012,330	3,156,610	2,137,990
Cadmium	121,926	151,261	67,131	143,433	161,758	77,597
Chromite	129,302	44,857	2,900	7,288	3,819	1,140
Copper [c]—sales value	239,274,000	222,467,000	65,221,000	128,289,000	210,945,000	214,087,000
Gold	60,333,400	51,186,900	50,067,300	48,849,100	51,734,000	51,912,000
Iron, ore	197,312,517	285,006,327	89,745,308	157,809,286	240,738,921	151,307,105
Iron, pig [d]	829,646,007	1,218,423,463	411,135,577	636,403,862	996,676,609	708,328,920
Lead (refined) [c]—sales value	44,990,000	76,296,000	35,840,000	51,562,000	76,138,000	90,625,000
Manganese ore [e]	1,796,863	2,396,235	495,097	472,501	880,178	1,318,771
Manganiferous ore [f]	1,552,492	2,437,798	255,131	1,766,419	4,888,393	2,739,254
Nickel—value at New York City	434,485	293,250	86,000	133,191	71,605	114,903
Platinum and allied metals—value at New York City	5,614,335	4,697,722	4,238,989	5,932,726	5,762,305	7,611,319
Quicksilver—value at San Francisco	1,933,560	1,066,807	300,595	368,348	521,302	691,090
Silver	63,533,652	60,801,955	53,052,441	56,240,048	60,134,839	43,540,369
Tin	73,400	22,000	2,400	912	1,623	7,028
Tungsten ore, 60% concentrates	353,900	101,800	....	....	144,600	200,000
Uranium and vanadium ores	1,630,900	2,401,000	876,000	166,016	150,000	(g)
Zinc [c]—sales value	66,032,000	72,907,000	19,823,000	40,273,000	69,134,000	67,058,000
Non-Metallic:						
FUELS:						
Coal, bituminous [h]	1,160,616,013	2,129,933,000	1,199,983,600	1,274,820,000	1,514,621,000	1,062,626,000
Pennsylvania anthracite	364,926,950	434,252,198	452,304,903	273,700,125	506,786,768	477,230,852
Coke	258,339,740	494,246,254	147,673,095	238,313,323	373,496,898	244,041,561
Natural gas	132,888,300	196,194,000	174,617,000	221,535,000	240,001,000	253,856,000
Natural-gas gasoline	64,196,763	71,788,122	61,815,258	72,711,063	77,268,000	82,233,000
Petroleum	759,866,000	1,360,745,000	814,745,000	557,531,000	978,430,000	1,022,683,000
STRUCTURAL MATERIALS:						
Cement	147,318,398	195,589,915	181,675,440	208,464,028	259,631,776	266,053,267
Lime	29,448,553	37,543,840	24,895,370	33,255,039	39,993,652	39,596,423
Sand and gravel	42,358,185	60,912,915	54,169,931	61,751,298	87,151,876	93;294,142
Slate	6,030,648	8,726,442	7,322,006	9,176,784	12,076,624	11,776,016
Stone	96,709,143	133,541,960	106,962,266	122,066,928	159,470,241	161,870,113

[a] From domestic and foreign ores. [b] From all sources. [c] From domestic ores. [d] Shipments, ferro alloys included. [e] Ores containing 35 per cent. or more Mn. [f] Ores containing 5 to 35 per cent. Mn. [g] Data not available for publication. [h] Includes brown coal, lignite, and anthracite mined elsewhere than in Pennsylvania.

VALUE OF THE MINERAL PRODUCTS OF THE UNITED STATES, 1919-1924 (*continued*)

Product	1919	1920	1921	1922	1923	1924
ABRASIVE MATERIALS:						
Corundum and emery	23,203	21,685	2,250	17,511	29,478	19,756
Diatomaceous earth and tripoli	713,501	1,649,370	895,629	703,397	1,082,163	1,083,326
Garnet	310,131	434,425	260,687	566,879	688,437	674,176
Grindstones and pulpstones	1,336,015	1,707,004	1,227,322	1,020,186	1,689,315	1,666,669
Millstones	66,972	63,325	24,524	20,853	22,229	30,125
Oilstones, scythestones, etc.	235,943	231,747	173,025	197,450	231,812	258,943
Pumice	116,835	114,433	158,540	175,600	214,169	190,253
CHEMICAL MATERIALS:						
Arsenious oxide	1,181,684	2,021,356	717,700	1,475,229	2,808,801	2,655,015
Borates	1,380,000	2,173,000	1,600,000	2,705,140	3,070,700	2,367,830
Bromine	1,234,969	745,381	172,759	150,668	146,176	594,685
Fluorspar	3,525,574	4,718,547	724,094	2,531,165	2,505,819	2,451,131
Gypsum	15,727,907	24,533,065	23,700,290	29,361,151	34,888,155	42,724,507
Phosphate rock	11,591,268	25,079,572	12,270,070	10,482,846	11,576,049	10,252,083
Pyrites	2,558,172	1,596,961	711,432	671,241	661,000	645,262
Salt	27,074,694	29,894,075	24,557,966	27,464,838	27,795,941	25,838,348
Sulphur	10,252,000	30,000,000	17,000,000	22,000,000	26,000,000	25,000,000
MISCELLANEOUS:						
Asbestos	248,265	678,231	336,968	10,120	9,626	42,526
Asphalt	9,410,361	13,199,365	11,033,804	12,639,105	15,945,805	18,263,346
Barytes, crude	1,727,822	2,142,464	531,958	1,123,950	1,664,156	1,540,744
Clay, raw	7,090,631	11,614,288	6,055,300	8,330,514	11,188,913	11,507,536
Feldspar, crude	585,200	851,123	617,652	844,568	1,057,595	1,509,339
Fuller's earth	1,998,829	2,506,189	1,973,848	2,289,719	2,247,523	2,632,342
Graphite, amorphous	47,716	49,758	20,860	(g)	39,560	38,533
crystalline	731,141	576,444	75,664	85,242	151,434	48,977
Magnesite, crude	1,248,415	2,748,150	510,177	571,745	1,103,700	1,041,300
Mica, scrap	58,084	167,017	56,849	114,045	129,695	87,242
sheet	483,567	546,972	118,513	194,301	311,180	212,035
Mineral waters	4,880,186	4,860,915	4,876,445	5,498,269	6,493,177	(i)
Peat	705,532	921,732	260,119	397,729	376,834	395,470
Potash (K_2O)	11,271,269	7,463,026	447,859	463,512	784,671	842,618
Sand, glass	3,593,371	4,748,690	2,314,314	2,866,366	3,751,778	3,718,973
Silica (quartz)	373,571	320,350	84,957	101,347	193,630	203,177
Talc and soapstone	2,352,675	3,035,449	1,755,942	2,859,897	3,012,253	3,515,556
Zinc and lead pigments	25,810,671	24,564,572	14,801,032	22,205,400	23,660,381	25,711,159

[g] Data not available for publication. [i] Data not available.

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DIVISION XX

MANUFACTURES

GENERAL CONDITIONS

By Lawrence B. Mann
Acting Chief, U. S. Division of Statistical Research

Summary of Recent Developments in Manufacturing.—Output of American factories reached a record total in 1925, as a result of the general prosperity of both the rural and urban population. An accumulated demand for motor vehicles and for additional housing accommodations resulted in a record output of automobiles, rubber tires, cement, brick, and many related products. This increase in production has been accompanied by some increase in stocks of both raw materials and finished products, and by an upward trend of factory employment. The number of wage earners in manufacturing industries has not, however, expanded as much in recent years as the volume of output, because of a substantial increase in the efficiency of factory operation. This increase output per wage earner has been obtained largely by the installation of new machinery operated by electric motors which receive their current from central power plants. Changed conditions in supply of both labor and power have resulted in a wider dispersion of manufacturing industries throughout the United States. As a result, there has been an exceptionally high rate of manufacturing growth in the Pacific and mountain states, while the largest absolute increase in production has occurred in the more thickly populated states of the Middle West.

Manufacturing During 1925.—Manufacturing increased substantially in volume during the first quarter of 1925, and the March output was larger than for any month of 1924, almost equaling the record-breaking totals of the spring months of 1923. Production was maintained at a high and unusually steady rate throughout the four following months. A moderate seasonal reduction occurred in August, but this was followed by a slight expansion in September. The aggregate output of American factories during the first nine months of 1925 was larger than in the corresponding period of any earlier year, exceeding the production of 1924 by 12 per cent., and that of 1923 by one-half of one per cent.

The chief reasons for this tremendous 1925 output of manufactures were the improved buying power of American agricultural sections and the unsatiated demand for automobiles and new buildings. Large European demand for cereals from America during the crop year 1924-25 caused a marked increase in agricultural prices and in the purchasing power of American farmers. The improved financial status of the rural communities was reflected in a 13 per cent. increase of mail order sales and an enlarged demand for a very varied list of manufactures which in turn caused increased factory employment and an expansion in urban buying.

As in the immediately preceding years, the motor vehicle and construction industries benefited in the most marked way from the general prosperity of the people of the United States. During the first three quarters of 1925, a total of about 2,790,000 passenger automobiles and trucks were produced, an increase of 7 per cent. as compared with the previous year (though slightly less than in 1923), and there was little evidence that the industry was approaching a point of saturation. A growing demand for motor busses in all sections of the country and an increase of 66 per cent. in the value of our exports of automobiles and chassis were factors contributing to this enormous output. Tire production also showed a large increase in 1925 due to the increased number of cars in operation and the widespread demand for balloon types as replacements for high pressure tires.

The volume of building for which contracts were awarded during the first eight months of 1925 was larger than in the corresponding period of any earlier year, being about 18 per cent. more than in 1924. This huge volume of new construction necessitated an increased production of lumber, cement, and other building materials.

Expansion.—Increased production of automobiles and new buildings, together with the improved condition of the farmers, has resulted in a moderate expansion of output in many manufacturing lines. Iron and steel production reached a very high level in the early months of 1925, declined during the spring and summer, and expanded again in the fall. Production of textiles and paper showed a rather similar trend, but were much less active in the first part of the year and had less of a revival in the autumn. Of the textiles, cotton and silk fabrics were produced in larger volume than in 1924, while there was little change in the output of woolens. Rayon (artificial silk), on the other hand, has shown a remarkable gain in popularity and was used in larger quantities than in any earlier year. The leather and shoe industries which have been depressed for several years had only a moderate increase in activity in 1925, though a considerable demand developed for staple lines of shoes. Output of manufactured food products showed only a moderate increase during the current year, though sugar meltings and cottonseed oil production were much larger than in the two preceding years due to the large sugar and cotton crops. Of the other industries ship-building was at a very low ebb and production of railway locomotives was drastically curtailed.

The expansion in manufacturing activity during the past year has been accompanied by a considerable increase in the stocks of certain raw materials at factories—notably cotton, silk and wood-pulp. Stocks of raw wool and of iron ore, on the other hand, were somewhat smaller in the summer of 1925 than a year earlier. Increased demand for raw materials has caused some advance in their price; the most striking appreciation has occurred in the price of crude rubber which was almost three times as high in September as a year earlier due to the increased demands from factories and the curtailment of the supply by British planters.

Stocks of finished manufactures have also increased moderately during 1925 and at the end of August were about 12 per cent. larger than a year earlier. Increases were most general among the construction materials and were particularly large for the various types of enamel sanitary ware. Stocks of manufactured foodstuffs, on the other hand, were substantially smaller than in 1924; reductions were most noteworthy for stocks of meat products, butter, and wheat flour. In spite of the increase in manufacturing output and in the volume of finished stocks, the unfilled orders on the books of manufacturers were substantially larger at the end of August, 1925, than a year earlier. Increases in unfilled orders were general among the building materials and the finished steel products.

Employment.—The expansion of manufacturing during the past year has been accompanied by an increase of about 6 per cent. in the volume of factory employment. The fact that employment has increased relatively less than the volume of output is explained in part by an increase in the average working hours and in part by a greater efficiency of operation which will later be discussed in more detail. The groups of industries which had made the largest additions to their working forces in August, 1925, as compared with a year previous, were automobiles, nonferrous metals, chemicals, iron and steel, textiles, and leather. Plants manufacturing food products and tobacco products were the only ones which reduced their forces during this period. Pay-rolls in August were 8 per cent. larger than a year earlier, the increases being particularly pronounced in the nonferrous metal, automobile, lumber and steel industries. Changes in pay-rolls during the past year have been primarily due to increases in number of employees and increases in amount of full-time operation of mills, as the changes in wage rates have been scattered and relatively unimportant.

The generally healthy condition of manufacturing industry in 1925 is indicated by the fact that failures of manufacturers during the first three quarters of the year were 5 per cent. fewer in number and 47 per cent. smaller in total liabilities than in the corresponding period of 1924. The position of the manufacturing industry in this regard has been particularly favorable, as both the number and liabilities of failures for trade establishments, agents, and brokers have increased during the current year.

The Growth of Manufacturing Industry (1849 to 1923).—The United States is at present the greatest manufacturing nation in the world. Some idea of the stupendous growth of manufacturing industries which has transformed the United States from a primarily agricultural to a predominantly industrial nation may be obtained from an examination of the following table comparing the results of the 1923 census which have just become available with those of earlier years:

MANUFACTURING GROWTH, 1849 TO 1923
(All figures in thousands.)

	Primary Horsepower	Wage Earners	Wages	Value of Products	Value Added by Manufacture
1849	*	957	$ 236,755	$ 1,019,107	$ 463,983
1859	*	1,311	378,879	1,885,862	854,257
1869	2,346	2,054	620,467	3,385,860	1,395,119
1879	3,411	2,733	947,954	5,369,579	1,972,756
1889	5,939	4,252	1,891,220	9,372,379	4,210,365
1899	10,098	4,713	2,008,361	11,406,927	4,831,075
1909	18,675	6,615	3,427,038	20,672,052	8,529,261
1914	22,437	7,036	4,078,332	24,246,435	9,878,346
1919	29,505	9,096	10,533,400	62,418,079	25,041,698
1923	33,094	8,779	11,009,297	60,555,998	25,856,280

* Data not collected.

These statistics are not strictly comparable, as hand and neighborhood industries are included in the data for years prior to 1899 and automobile repair shops and establishments doing a business of less than $5,000 per annum were not included in 1923. Both of these major changes in scope of the manufactures census tend to minimize the growth of the industry in making comparisons. A comparison of the figures for 1923 with those for 1849, nevertheless, show that in less than three-quarters of a century the number of persons employed in American manufacturing industries has multiplied by over nine times, while the value of their product has increased sixty times. During the twenty-four years ending in 1923 primary horsepower engaged in manufacturing increased 228 per cent.; the number of wage earners, 86 per cent.; the total value of products, 431 per cent.; and the value added by manufacturing, 435 per cent.

Price.—Comparison of the results of the 1923 census and the 1914 census is particularly significant, as it indicates the permanent growth of industry during the war period. As there were very substantial changes in prices during this period it is necessary to make some adjustment for this factor in comparing figures expressed in values. Adjustment of the increase of value added by manufacturing to allow for increases in average prices of manufactured products indicates that there was a 58 per cent. increase in the quantitative output of manufactures during these nine years. All of the sixteen major groups of products shown by the census except tobacco manufactures have increased their output; the principal increases occurring in the transportation group which includes automobiles and the rubber products group which includes tires. Other groups which showed more than the average increase in output were textiles, iron and steel, machinery, railroad repair shops, and miscellaneous industries.

Increase in Efficiency of Manufacturing.—Changes in the general efficiency of manufacturing industry may be estimated by dividing the value added to materials in the process of manufacture by the number of wage earners. As the value added by manufacture represents not merely the product of labor but also that contributed by managerial ability and machinery, a quantitative increase in output per wage earner may represent an increase in efficiency in any or all of these factors. The average value added to materials per wage earner employed was about $1,400 in 1914, $2,750 in 1919, and $2,950 in 1923. If the increase from 1914 to 1923 be corrected for price changes, it indicates a quantitative expansion in per capita output of nearly 26 per cent. The increase in per capita output during the post-war years has been particularly notable, as pressure for immediate production during the war years tended to hamper efficiency of operation.

One reason for the increased output of factories per wage earner has been the increase in the amount of machinery used and the constant substitution of improved types of machinery. In the period from 1919 to 1923 the physical production of factories was increased by about one-fifth, while there was an actual decrease of 3½ per cent. in the number of wage earners employed. During this period the amount of primary horsepower of factories was increased by 12 per cent. Furthermore, the entire increase in the amount of power apparatus was in the form of electric motors which received their current from central power plants and there was an actual decrease in the power provided by local plants.

Changes in Geographic Distribution of Manufacturing.—In the middle of the last century most of the manufacturing of the United States was concentrated in the northeastern states, but for many years it has tended to spread both to the west and the south. A tendency to concentrate an industry in one section has been succeeded by a tendency to distribute many industries in widely separated areas. The steel industry which was once largely concentrated in the vicinity of Pittsburgh, now has other large manufacturing centers at Chicago and Birmingham. The cotton textile industry which was once confined principally to New England is now rather evenly divided between the South Atlantic and New England states. The shoe industry has shown a decided tendency towards localization and has now become of substantial size in New York, Missouri, and Ohio, as well as in New England. On the other hand the recently developed automobile industry has been concentrated almost exclusively in Michigan. This decentralization of industries geographically is favored by the wide area of the United States, the development of many large local markets, and the greater flexibility of labor supply obtained by locating plants in many different sections. It is also made more feasible by the substitution of electric power for water-power.

An analysis of census statistics by districts indicates that the East North Central states have had the largest actual growth of manufacturing during the last decade. As a result of the tremendous growth of the automobile industry in Michigan, the rubber-tire industry in Ohio, the steel industry on the shores of the Great Lakes, and the machinery industry in many separate centers, the number of wage earners employed in these states has increased 42 per cent. and the amount of primary horsepower 67 per cent. from 1914 to 1923. Due to the pronounced growth of steel, canning, motion picture, and other manufacturing industries in California and of the lumber industry in the northwest, manufacturing has shown an even larger relative growth in the Pacific states than in the East North Central group, but the total size of the industry in that section is still very much smaller. The mountain states have also shown a substantial growth in manufacturing activity, though their aggregate output is still small. In the various sections of the South manufacturing has shown about the same growth as for the nation as a whole, due largely to increased output of cotton textiles and lumber.

Even in New England, which has suffered from the competition of other sections in the textile and shoe industries, the number of factory wage earners in 1923 was 10 per cent. and the amount of primary horsepower 33 per cent. more than in 1914.

SHIPBUILDING AND SHIPREPAIRING

By Peter Bain

Editor of Bain's Marine Annual

Depression.—The year 1925 had scarce dawned when the opinion was expressed by a gentleman close to ships and shipping that American shipbuilders and shiprepairers, and American shipowners, would have great difficulty in surviving a repetition of 1924. Shipbuilding and shiprepairing, the world over, had reached a stage of depression hitherto unknown in either industry—plants were being sold and dismantled, while many remained unsold—this, together with a hugely overbuilt condition everywhere staring one in the face, otherwise than lining up with those of the pessimistic turn of mind, entailed the drawing upon one's resources of optimism nigh to the dregs. It was January 1, 1925. We were looking forward then.

Bright Spots.—Looking back over 1925, we find many of our fears and forebodings to have been groundless. The United States of America may well be placed on record as one of the bright spots. It is true that our record is still far removed from normal in the matter of tonnage under construction, launched and completed, and that as regards vessel size and type, machinery installation, general equipment and outfitting, we may have done nothing very outstanding in either of the directions indicated, or compassed any very spectacular achievement.

Looking back, it may be claimed, however, that we have fared very well and have done very well, everything considered and, looking forward on the threshold of 1926, it is not now a question of surviving another such year; rather is it, how close to normal will the next twelve months bring us. It is, of course, true that contracts for both new construction and repair work have been and are still being secured in the face of keen competition and, having regard to the commendable effort made and determination displayed by plant executives to retain their expert staffs and skilled employees against the certain advent of better times, it is no secret that profits have been slim and not always realised.

Public Demand.—American shipbuilding activity, aside from that pertaining to vessels for Great Lakes and Inland Waterways Services, which is never far from normal, has arisen almost entirely from a demand that had been making itself felt even during 1924—the demand, both passenger and freight—for bigger, faster, more modern and therefore more comfortable and more luxuriously equipped and furnished coastwise and intercoastal liners. In a word, there was needed because desired, similar and equal travel conditions on a trip to South Atlantic, Gulf, West Indies and Pacific Coast ports as the conditions available on the big trans-Atlantic liners.

Domestic and World Figures.—On January 1, 1926, American shipyards were building or under contract to build for private shipowners 186 steel vessels of 219,793 gross tons compared with 161 steel vessels of 177,166 gross tons on January 1, 1925. On January 1, 1926, 36 wood vessels of 11,756 gross tons were building or under contract to build for private shipowners, compared with 13 wood vessels of 6,303 gross tons on January 1, 1925. The totals above relate to vessels of 100 gross tons and over, the distribution of the work embracing some 30 plants of various capacities—inland and coastwise—Atlantic, Gulf, and Pacific.

Output.—According to Lloyd's Register of Shipping, for the year ended December 31, 1925, there were launched from American shipyards, 20 steam propelled steel vessels of 95,673 gross tons, 25 motor propelled steel vessels of 42,685 gross tons, 3 motor propelled wood vessels of 578 gross tons, 25 steel sailing vessels and barges of 25,086 gross tons, and 23 wood sailing vessels and barges of 11,396 gross tons, making a grand total for the twelve months' period of 72 vessels of 156,248 gross tons. These figures compare with 15 steam propelled steel vessels of 67,594 gross tons; 20 motor propelled steel vessels of 39,383 gross tons; 2 motor propelled wood vessels of 550 gross tons; 23 steel sailing vessels and barges of 22,086 gross tons, and 19 wood sailing vessels and barges of 10,450 gross tons, or a grand total of 78 vessels of 140,063 gross tons for the year ended December 31, 1924. World launchings for the year ended December 31, 1925, totaled 1,025 vessels of 3,065,288 gross tons, compared with 924 vessels of 2,248,351 gross tons as of December 31, 1924.

Sources of the 1925 Activity.—As with shipbuilding, so with shiprepairing, the gratifying measure of prosperity enjoyed has been wholly of a domestic and national character. Of course, and having in mind the large number of foreign ships trading to and from our ports, there have been the normal meaty pickings, arising from drydocking, scraping and painting, rough weather buffeting, strandings, collisions, etc. The reconditioning of vessels for services other than which they were originally designed for was rather above normal, and consisted of new adaptations of the passenger accommodations and freight spaces, together with the substitution of oil-burning equipment for that of coal, to meet special service demands, the most spectacular of which was the all-water route between New York and Miami, Fla.

The fact that during 1925 we did not build for foreign account, and that all new construction ordered was for account of American ownership, constitutes a circumstance by no means novel. Other things being equal, American costs are high comparatively, and naturally when competition is thrown open to the shipbuilders of the world, we lose out. With the exception, however, of tankers, a number of which are in various stages of construction in British and Continental yards, it would appear that for other class and type vessel, comparative costs have reached a point where home builders may reasonably be favored. An interesting feature of the position indicated was the decision of the Eastern Steamship Lines (Coastal), following an investigation of costs abroad by its President and Mr. Theodore E. Ferris, the well-known naval architect of New York City, to build its two new vessels at home, the Wm. Cramp & Sons Ship & Engine Building Co., Philadelphia, securing the order.

The Liner "Malolo."—This firm also has under construction the big liner *Malolo* for the San Francisco-Honolulu Service of the Matson Navigation Co. Gibbs Brothers, naval architects and consulting marine engineers, are the designers of this vessel, which is expected to rank among the finest of our home-built liner products when she goes into commission. Contract for her construction was approved by the United States Shipping Board on December 16, 1924, the cost to be $6,560,000. Approval of the Board was necessary under Section 23 of the Jones Act, which provides the setting aside of an amount equivalent to excess and war profits taxes for the purpose of building in American shipyards, new vessels of a type and kind approved by the Board, two-thirds of the cost of which vessels shall be paid out of ordinary funds or capital of the person having the vessel constructed.

The *Malolo*, which is expected to go into service early in 1927, will be 582 ft. long, will displace 22,050 tons, and will develop 25,000 shaft horse power through steam turbine driven twin screws, the latter enabling a schedule speed of 21 knots being maintained on the run and something substantial to spare. She will have capacity for 680 first class passengers and will make two round trips a month. The *Malolo* will establish a new standard—the big trans-Atlantic liner standard—in comfort and luxury in Pacific Ocean travel. A cruiser stern, two pole masts and two short but imposing stacks, well raked, will give the vessel at once a dignified and powerful appearance.

Big Panama-Pacific Liners.—The third and fourth quarters of 1925 showed a good deal more activity on the part of steamship owners in the matter of fleet additions and therefore in the placing of orders with shipbuilders. The most noteworthy order placed was that for a new liner by the Panama-Pacific Service of the International Mercantile Marine Co. Announcement of the placing of a contract with the Newport News Shipbuilding & Dry Dock Co., for the first of a fleet of three intercoastal passenger liners was made during the last week in October, thereby signalising the first move in a construction program which will involve the expenditure of $21,000,000.

In general design, as well as in details of layout and construction, the new liner will differ from all other vessels now employed in American coastal or intercoastal trade. Her design is based on the new "Minne" class of the Atlantic Transport Line —the *Minnewaska* and the *Minnetonka*, plying between New York and London, but elaborated as to deck plans and cabin arrangements to meet the exacting requirements of service in both tropical and temperate climates at all seasons of the year. The specifications call for a passenger liner of 22,000 tons gross register, a loaded displacement of 31,000 tons, a speed of 18 knots, derived from machinery installation of 18,000 horse power developed through steam turbines coupled to General Electric Co generators, operating twin screws. Oil fired, water-tube boilers, twelve in number, will supply steam to the turbines. This type of propelling machinery, although well tested through installation in many vessels of the United States Navy, is somewhat of a novelty in merchant ships.

Smartness of appearance and a suggestion of tropical service will be accentuated by a white painted hull and superstructure. The new ship will have eight decks, a cruiser stern, a single stack, be 600 ft. in length, 80 ft. beam and 52 ft. depth. There will be 147 staterooms in the first class and 110 in the tourist class. The public rooms will be finished in American walnut and white, in period styles. Staterooms will all be of the outside type in both classes, while deck spaces for promenading and sports will be equally spacious as on the big trans-Atlantic liners. Novel features in the vessel's construction will embrace large side ports through which automobiles carried by passengers as baggage can be driven on board. Delivery from the hands of the builders is expected in the Fall of 1927.

Additional Orders for Coastwise Vessels.—Notwithstanding the considerable number of new vessels placed in coastwise service during the past two years, all of which were, of course, built in American yards, orders still continue to be placed for more, the Clyde Line being conspicuous in this direction. Replacement of some of its vessels, unfortunately destroyed by fire, has been promptly undertaken, contracts having just recently been awarded the Newport News Shipbuilding & Dry Dock Co., from whose yard the trio of palatial liners—*Cherokee, Seminole and Mohawk*—were also turned out and placed in commission during 1925.

Government Encouragement.—Advantage is being taken in more generous measure by private shipowners of the Government Construction Loan Fund and, as time goes on, with the period of its availability extended, as it should be, the value of such a fund in building up a substantial privately owned American Merchant Marine and maintaining it at the highest pitch of efficiency, not only in coastwise trade but in international trade as well, will become decidedly more marked in achieving the objective for which it was instituted. Section II of the Merchant Marine Act of 1920 as amended by the new law approved June 6, 1924, provided "That during a period of five years from the enactment of the Merchant Marine Act, 1920, the Shipping Board may annually set aside out of the revenues from sales and operations a sum not exceeding $25,000,000, to be known as its Construction Loan Fund." This $25,000,000 a year, while available for private shipowners, "citizens of the United States," authorized, through Section II of the new law, the Shipping Board also to utilize the fund for the reconditioning of its own vessels and equipment with "the most modern, the most efficient and most economical" types of internal combustion engines. A start has been made in this direction.

Therefore, while the Construction Loan Fund, with its many advantages, had been available in modified form for several years, comparatively few steamship owners had made use of it. Aside from some light draft craft for the Great Lakes, the only vessels built and in commission, building or contemplated, were the *George Washington* and *Robert E. Lee* for the Old Dominion Line, the *Coamo* for the New York & Porto Rico Steamship Co., and the *Cherokee, Seminole* and *Mohawk*, for the Clyde Line, all of them combination passenger and cargo carriers, and all placed with the Newport News Shipbuilding & Dry Dock Co.

Other New Construction Features.—New construction for coastwise account while filling a large place has been otherwise aided in making the 1925 record so favorable and the immediate future outlook equally so. Harbor craft, consisting of tugs, barges and ferryboats have been ordered, built and completed, for duty in the territorial waters of many of our principal seaports, the number and variety being such as to warrant one in saying that the output has been somewhat ahead of normal and the ownerships involved about equally distributed between private enterprise, municipalities and railroads. On the Great Lakes, it may be said that new construction and repairs have kept the various yards reasonably well employed, especially when one considers that no great deviation is noticeable in the output or its nature and variety from year to year.

The many developments taking place in the spheres of shipbuilding and shiprepairing, together with the advances being recorded in ship propulsion mediums, ship equipment, and freight handling apparatus, have been responsible for much of the new construction relating to harbor craft, this being generously apparent in Diesel engined tugboats, Diesel-electric tug and ferry boats, with and without auxiliary steam apparatus, water-tube boiler installations with oil burning provision, increased and improved service efficiency being the inevitable outcome. A development of the past year in our midst was the decision of the Marine Department of the New York Central Lines to have ten barges built on the Ellis Channel System, a number of which are already in commission and giving, we understand, complete satisfaction. Low first cost, strength, and economy of material are among claims made on behalf of the system.

Sale to a Foreign Concern.—Concluding this brief review, it may be said that the transfer of the plant of the New York Shipbuilding Corporation, at Camden, N. J., was an event of rather more than passing interest, indicating as it did that the new owners—Brown, Boveri Co. of Switzerland—see great possibilities here for enlarging their diversified and far flung activities. Ships are more or less always needed for special services, besides, in this day of new type hulls, new systems of constructional detail, new propulsion mediums, etc., changes are taking place oftener and generally more suddenly than heretofore, all of which implies that existing vessels get rapidly out of date and must be replaced by their owners if they would hope to continue in business. An earnest and praiseworthy attempt is being made to still further develop our inland waterways, a consummation in its intermediate stages which will certainly bring "grist to the mill" of the shipbuilder the shiprepairer and the marine engineer. The New Year, 1926, is already tinged with optimism, born of a confidence based on sound reasoning, careful analysis and much fact.

INVENTIONS AND PATENTS

By Wm. A. Kinnan

First Assistant Commissioner of Patents

Output of Patents.—Our people obtain far more patents than any other people on earth. During the year 1925 over 80,000 applications were filed in the Patent Office at Washington, and over 45,000 patents were granted. This very nearly broke the record as to applications and did break it as to the number of patents granted.

These patents relate to the production of almost everything man makes and uses. Reading, through them, the story of the progress of the year, they show that the great trend has been toward refinements and perfections, rather than toward anything startlingly or fundamentally new. The cotton gin, the sewing machine, the telephone, are fundamental inventions, which affected and changed the entire economic and domestic habits and modes of life the world over; and the making of each was followed by a vast number of auxiliary or dependent inventions in the nature of improvements, refinements and perfections. The past year has produced no invention of this fundamental nature, but those which have been made are, collectively, of very great importance. Patents have been granted during the year 1925 relating to all the matters hereinafter noted, although the inventions in some instances were made and the applications filed prior to this year.

Broadcasting. — The broadcasting station has come in for some suggested improvements in regulating its oscillator frequency by means of the piezo-electric crystal; also efforts have been directed to the adaptation of the antenna, so it will more efficiently radiate a band of such width as to accommodate telephony. Further, perfections in the transmission from long-distance telephone wires to widely separated broadcasting stations have been made so that the music or a speech from a single point may be simultaneously transmitted by wire over considerable and different distances to a larger number of broadcasting stations located in as many different places or cities. Since there are now only about eighty-nine paths, or channels or wave lengths, which are available for use without prohibitive interference, and some 600 public-serving broadcasting stations, a remedy must be found. Increased selectivity and band range of receiving sets or conjoint simultaneous operation as a unit of a large number of broadcasting stations from a common source and on a common wave length would seem about the only solution if more broadcasting stations are to be permitted. Efforts of inventors have been directed along both these lines. Transmission and reception from moving vehicles have been pretty well worked out. The radio receiving set has come in for a good deal of attention. The so-called neutrodyne receiver has been improved in the matter of its amplification of received energy; some attempts at providing a calling system for a receiving set have been made, and also for the better reception of continuous waves without the use of the heterodyne principle. Efforts have been made to prevent local interference between transmitting and receiving systems of duplex type. Means have been devised for supplying the radio tubes with current from the lighting or other power circuits available in homes. Attempts to eliminate static, strays, and the phenomenon of "fading," especially with short wave lengths, have been made. A very "hard" or "high" vacuum tube has been recently patented.

X-Rays.—In the X-ray art, better regulation has been obtained whereby better photographic effects are secured. Apparatus for determining the composition of minerals through diffraction of X-rays and securing photographic records thereof and arrangements looking to the elimination of objectional corona effects have been made.

Aircraft.—In connection with aircraft, advances have been made in variable camber wing planes. Increased strength, lighter construction, decreased liability of fire and greater flying range have been secured by the more complete adoption of all-made structures having internally trussed box-girder wing planes with wing enclosed power plant and load space. There has been a reduction in the necessary run or take off in launching. Progress has been made in the helicopter type of aircraft and the overcoming of some of its stabilizing and steering problems, and hydroairplanes have been much improved. Some advance has been made in airplane gun mounts and in the provision for central, stabilized, electric, gun fire control. Smoke screen producers have received some attention, as have mooring masts for the huge, gas-inflated type of air vessel.

Moving Pictures.—Regarding improvements in and relating to the fascinating procedure of making moving pictures, efforts have been directed to producing moving picture machines which will reduce the cost of making the pictures; to overcoming defects in the continuously moving film type of machine; to obtaining better stereoscopic effects in cinematography; to projecting color motion picture films at a speed nearer that of the black and white pictures; and to the saving of film by stopping it while projecting titles. Pictures are more cheaply produced by improvements in combining the natural with the artificial, by the use of painted glass foregrounds, miniatures, models, and by optically blending scenes and masking off areas for subsequent exposure on the same film. In stereoscopic cinematography steps have been taken to avoid the use of the synchronized shutter or anaglyphic viewing device by each observer and this avoids the cumbersome, expensive installation formerly found necessary. The quick "framing" of motion pictures has contributed to improved registration.

Automobiles.—In automobiles the advances have been in reliability, longer life and better use of power. Inventors have given heed to keeping the lubricating oil in the crankcase free of grit, dirt, metal-dust and other bearing-injuring impurities; the carbureter and its auxiliary charge-forming devices have taken on some further refinements, particularly to prevent the carrying of liquid or unvaporized gasoline into the engine cylinders and providing for preheating the charge mixture. In passenger automobiles, safety and comfort to the occupants and longer life to the car have been sought by providing against headlight glare and securing clearer vision in closed cars, by the design of steering gears suitable for balloon tires, and by so mounting the engine and transmission as to reduce vibration. The patent for the balloon tire was issued in 1925, although the invention was made, the application filed and the tires widely used long before. Further refinements have been made in the disk wheels. In vehicles having six or eight wheels, as in heavy busses and trucks, means for flexibly and yieldingly mounting, connecting together and driving the two rear axles, as well as steering gear for both front and rear axles have been provided. The arrangements whereby tractors both draw and steer trailers have been improved and the range of utility of the tractor has been increased. Quite a number of inventions have been directed to the prevention, by giving some sort of notice or warning, of the very enormous waste incident to carelessness or forgetfulness of car users whereby tires are used when under-inflated, and cars not given attention as to oil, grease, battery-filling, water in radiator, etc.

Steam Engines.—Here the constant tendency has been to higher steam pressures, the more economical production of steam and its more efficient utilization, especially of the exhaust.

Railway Rolling Stock.—In this field the locomotives have continued to grow larger and heavier and new refinements and improvements have been necessary. Boosters or supplemental power devices for them have been much improved, as have also steam turbine locomotives, a combined gas and electric type and a gas and Diesel motor type. Regarding the car structure, the articulated type of train wherein adjoining car ends are carried upon single trucks has been practically perfected; while cast and sheet steel railway truck frames; sheet steel ends for freight cars; a constant increase in the size of freight cars, seventy tons now being standard with one hundred ton cars proposed; higher spring capacity to reduce bumping, jolting and consequent track injury and the harmful effects upon merchandise are some of the further improvements devised. Automatic train stop apparatus functioning in accordance with traffic conditions has been made more reliable, while block signaling systems without make and break contacts have been perfected.

Oil Refining.—In the mineral oil field, progress has been made in both processes and apparatus of the tube and drum type in the high pressure pyrogenesis of hydrocarbon oils. The refluxing of the cracked vapors improves the character of the distillate, a notable step being the returning of part of the final distillate to the reflux condenser. There has also been devised the plan of splitting the raw feed into two streams, sending one direct to the cracking coil while using the other as a refluxing medium. In topping oils by heating in tubes, the principle of the countercurrent travel of the oil and the combustion gases, to prevent excessive heating has been utilized; the employment of mercury vapor as a heating means in oil cracking processes whereby hot spots in the still are said to be avoided has been proposed and inventors have sought the substitution of chemical dehydration of petroleum emulsions for the laborious and expensive processes involving physical, mechanical and electrical means previously used.

Metallurgy. — Considerable progress has been made in the field of alloys, particularly in the production of special steels, and in reducing the cost of manufacturing stainless steels. Chromium and cadmium plating has been advanced as has the process of and means for centrifugal casting. Improved methods and means for casting aluminum and its alloys have been invented.

Building and Materials.—In building, the trend has been marked toward the substituting of concrete, metal and composition for brick, wood and slate, with a gain in cheapness of material and saving of labor. As a result inventors have considerably improved building blocks and slabs, plaster and insulation boards which are much used. Interlocking flexible shingles and artificial shingles have been more nearly perfected, while the tendency to build warmer houses is seen in the improvement in the means to insulate buildings with sheathing, hollow wall structures and metal weather strips.

Housekeeping. — For the busy housekeeper inventors have been active in making minor improvements. Heating, cooking, cleaning and laundry work by utilization of electricity have been carried nearer to a maximum of efficiency and satisfaction. Safety devices of various kinds to prevent accidental injury to unskilled or careless operators, especially in connection with the heavier domestic machines, such as washing, wringing, and ironing machines, have been also brought out recently.

Agriculture.—In the agricultural field where greater use of machinery is compelled by reason of the scarcity of labor, many small refinements have been produced. Dry harvesting mechanisms which harvest the grain while leaving the stocks to be later ploughed under have been further perfected, while seed and grain saving machines, and combined tractors and harvesters have been made more satisfactory and reliable in operation.

Mining and Oil Wells.—In coal mining operations, chain cutting machines for cutting long walls and delivering the coal, broken to desired sizes, to cars or trucks in one operation have been made more successful. Some attention has been given to means and methods for clearing out old oil wells and making them again productive. These efforts have been generally directed to getting out the solids and paraffin at the bottom of the well.

Office Machines.—For the business and professional man, inventors have sought to produce a smaller, more readily portable typewriter which possesses all the functions of the standard machine. Also the complete bookkeeping machine which types, computes, manifolds, checks error by locking up when error is made, has been brought nearer final commercial perfection.

Summary.—These are some of the more important contributions of inventors to American prosperity, comfort and convenience made during the year 1925. The list could be indefinitely prolonged. Each inventor has added his contribution, even though individually small, to the great sum total that makes our people, in automatic machinery, in labor saving machinery, in industrial output per man, the leaders of the world.

ADMINISTRATION OF THE TARIFF

By Ernest W. Camp
Director of Customs, Treasury Department

Customs Districts. — There are forty-seven collection districts of the United States, which include one each in Alaska, Hawaii and Porto Rico. These districts contain three hundred ports of entry, one port in each district being designated as the headquarters port, at which port the Collector of Customs, who is the principal customs officer of the district, is stationed.

Appraisers of Merchandise are designated and assigned to sixteen of the larger headquarters ports. At other ports certain officers of the Collector's force are designated acting appraisers.

Surveyors of Customs are assigned to the ports of Portland, Maine, Boston, New York, Philadelphia, Baltimore, New Orleans and San Francisco, and Comptrollers of Customs to the ports of Boston, New York, Philadelphia, Baltimore, New Orleans, Chicago, and San Francisco.

Duties.—Although Customs is one of the oldest branches of the Government, popular conception of the functions of customs goes little beyond the apprehension of smugglers and the examination of passengers' baggage on trains and piers. Duties collected on passengers' baggage, however, amounts to only three-fifths of one per cent of the total customs receipts. Customs receipts for the fiscal year 1925 were $548,521,794. Of this sum $3,399,583 resulted from baggage examinations and $28,484,808 from importations through the mails, while over half a billion dollars was collected on cargo and freight importations.

Manner of Entry.—All imported merchandise, whether dutiable or free, is required to be submitted to customs for examination. If the value of an importation exceeds one hundred dollars a formal entry thereof must be made. Certain exceptions to this requirement are set forth in the Tariff Act of 1922 (Sec. 498), the principal exception covering "articles carried on the person or contained in the baggage of a person arriving in the United States."

Merchandise may be entered for consumption; for warehouse; for transportation and exportation; or for immediate transportation without appraisement. A consumption entry is the usual form and is used in cases where it is desired to pay the duty on the arrival of the importation at the port of entry and to secure delivery. If immediate possession of the merchandise is not essential and the importer desires to postpone the payment of duty, a warehouse entry may be made. Under this form of entry, the merchandise is sent to a bonded warehouse and duty is not paid until withdrawal therefrom. Merchandise remaining in bonded warehouse for more than three years becomes abandoned to the Government and is sold at public auction. An entry for transportation and exportation permits merchandise to be shipped in bond through the United States to a foreign destination without the payment of duty; and the immediate transportation entry permits an importation to be shipped in bond from the port of first arrival, without appraisement or the payment of duty, to an interior port, where a consumption entry or warehouse entry may be made.

Documents required to be furnished the office of the Collector of Customs in making a formal entry of merchandise include the entry (Form 7501), declaration of ownership (Form 3347), bond for redelivery, production of missing documents, etc. (Form 7551), delivery permit (Form 7501a), a bill of lading and consular invoice. A form is now in quite general use, however, combining the entry, declaration, and redelivery bond.

The consular invoice is made out by the shipper on special forms furnished by the American consular officers, the shipper being required to certify to the truth of statements contained in the invoice before the consular officer at the place of manufacture or sale. Copies of this invoice are forwarded to the importer for use in making the customs entry.

When the entry is presented at the Customhouse, an entry clerk examines it to determine if it is complete and properly executed. He then checks up the calculations and makes an estimate of duties to be paid, which the importer deposits. The delivery permit, stamped to indicate that the duties have been paid, is then given the importer, which, on presentation on the pier, authorizes the inspector to deliver certain packages to the importer and certain other packages, indicated on the permit, to the Appraiser's Stores for examination and appraisement. An examiner at the Appraiser's Stores examines the merchandise and approves the entered values or advances them if he believes them to be too low. While the determination of the rate of duty to be paid is a function of the Collector, an advisory classification of the merchandise is made at the Appraiser's Stores. If no irregularities are discovered, the importer is notified to call for his packages. If irregularities are discovered in the examination of packages, the examiner may call on the importer for the redelivery of the balance of the importation, which has been removed from the pier on the delivery permit, which redelivery the importer is bound to make under the terms of his redelivery bond, so-called. After the work at the Appraiser's Stores has been completed, the papers are returned to the Collector, where the duties owing to the Government are computed. This is known as liquidation of the entry. If the liquidated duties are less than the estimated duties which have been deposited, the difference is refunded to the importer, and if the liquidated duties are higher, the importer is called on for an additional deposit.

If the importer is dissatisfied with the appraisement, he may, by appeal, secure a review by the Board of General Appraisers of the appraiser's decision (Sec. 501, Tariff Act 1922). Likewise, a review by the Board of General Appraisers and Court of Customs Appeals of decisions of the Collector may be obtained by the filing of a timely protest (Sec. 514, Tariff Act 1922).

Violations.—Automobiles and other vehicles arriving in the United States from Canada and Mexico are required to report without delay to the customs officer or customhouse nearest the place of such arrival. Failure to report subjects the offender to a fine of $100 (Sec. 459, Tariff Act 1922).

The Secretary of the Treasury is authorized to pay an award to any person other than a Government officer furnishing information to a customs officer regarding a violation or contemplated violation of the customs laws, which information leads to a recovery of duties, penalties or fines, the amount of such award to be 25 per cent. of the net amount recovered, but not to exceed $50,000 (Sec. 619, Tariff Act 1922). In the year 1925, $620,000 was recovered by the Government as a result of information furnished under this provision of law.

Summary.—Information in detail regarding customs procedure may be found in "Customs Regulations 1923," a 792-page document on sale by the Superintendent of Documents, Government Printing Office, Washington, D. C. The various phases of customs work are conveniently segregated in the thirty chapters of this publication.

In the year 1914, the port of New York collected 68 per cent. of the total customs receipts of the United States. This percentage in 1922 was 63 per cent.; in 1923, 57 per cent.; in 1924, 58 per cent; and in 1925, 55 per cent. As this indicates, the greatest increases in customs collections have been at ports other than New York.

Customs Transactions.—The following condensed table of customs transactions indicates the progress of the service:

	1921	1922	1923	1924	1925
Consumption entries:					
Free	217,053	182,267	209,778	206,154	209,319
Dutiable	261,094	310,722	389,511	416,449	428,989
Informal entries	110,758	120,231	145,151	164,102	182,505
Mail entries	409,286	508,590	560,498	638,773	742,917
Baggage declarations	287,108	234,470	284,644	339,541	340,685
Drawback entries	13,455	15,153	11,021	13,971	21,477

Assistant Secretary of the Treasury, Lincoln C. Andrews, is in charge of the Coast Guard, the Customs Service and the Prohibition Unit.

ACTIVITIES OF THE TARIFF COMMISSION

By Thomas O. Marvin

Chairman, U. S. Tariff Commission

Under the Tariff Act of 1922 the duties of the Tariff Commission were considerably increased. Sections 315, 316 and 317 of that Act gives the President power to change the rates of duty under certain conditions after the Tariff Commission has laid before him the facts in the case. Section 315 allows a change within an upward or lower limit of 50 per cent. of the prevailing duties if an investigation by the Tariff Commission discloses the fact that the differences in costs of production of similar competing articles in the United States and foreign countries warrant a change in the rate of duty. Section 316 authorizes additional duties or exclusion of imports by the President if unfair trade practices are found to prevail in the importation of the articles. Section 317 deals with trade discriminations practiced by foreign governments against the trade and commerce of the United States.

Cost of Production.—The principal activities of the Tariff Commission during the year 1925 have been in connection with investigations connected with Section 315. From September 1, 1922, to November, 1925, 326 applications have been received for action under this section of the law. The analysis of these applications is presented below by tariff schedules. (See page 556.)

In addition to the applications listed above, fourteen requests have been received for investigations looking toward the use of the American selling price ("American valuation") of similar domestic articles as the basis for levying duty upon the imported product. Eleven requests have

APPLICATIONS RECEIVED
September, 1922, to November, 1925
Under Section 315

Schedule	Number	Increase Requested	Decrease Requested
1. Chemicals, oils and paints	90	32	58
2. Earths, earthenware and glassware	26	16	10
3. Metals and manufactures of	28	16	12
4. Wood and manufactures of	14	7	7
5. Sugar, molasses and manufactures	7	..	7
7. Agricultural products and provisions	70	40	30
9. Cotton manufactures	9	7	2
10. Flax, hemp or jute and manufactures of	6	4	2
11. Wool and manufactures of	7	3	4
13. Paper and books	6	3	3
14. Sundries	38	18	20
Total	301	146	155

been received for adjustments of the duty upon certain products as compared with the duty upon other related products.

It is obvious that the appropriations of the Commission, and in some instances the merits of the matter will not justify a foreign and domestic cost investigation and a public hearing in every case in which a change in the duty is sought. The Commission in all cases makes a preliminary study, including usually a considerable amount of field work by the agents of the Commission in connection with each application, in order to determine whether or not an investigation is warranted. These preliminary activities supply the Commission with much valuable information of which ordinarily there is no public record. These data will, of course, be useful to the Commission and to Congress in connection with subsequent tariff legislation.

After a careful examination of the applications the Commission has ordered, from the beginning of 1923 to November, 1925, forty-nine investigations under Section 315. These investigations are divided among the schedules of the Tariff Act as follows:

INVESTIGATIONS ORDERED UNDER SECTION 315

Schedule	Number
1. Chemicals, oils and paints	16
2. Earths, earthenware and glassware	5
3. Metals and manufactures of	6
4. Wood and manufactures of	4
5. Sugar, molasses and manufactures	2
7. Agricultural products and provisions	6
9. Cotton manufactures	4
10. Flax, hemp or jute and manufactures of	1
13. Papers and books	1
14. Sundries	4
Total	49

Of the total number of investigations ordered under this section of the law seventeen were completed by November, 1925.

Changes Ordered.—The President, after receipt of a report of the Tariff Commission, supplemented in some cases by information from other governmental departments, has taken action, up to November 15, 1925, in respect to the following articles:

PROCLAMATIONS BY THE PRESIDENT

Commodity	Date	Action Taken
	1924	
Wheat	Mar. 7	Increase from 30¢ to 42¢ per bushel of 60 pounds.
Wheat flour, semolina, etc.	Mar. 7	Increase 78¢ to $1.04 per 100 lbs.
Bran, shorts and by-products	Mar. 7	Decrease of 7½% ad valorem.
Sodium nitrite	May 6	Increase 3¢ to 4½¢ per pound.
Barium dioxide	May 19	Increase from 4¢ to 6¢ per pound.
Barbital	Nov. 14	Increase to 25% based on American selling price.
Oxalic acid	Dec. 29	Increase from 4¢ to 6¢ per pound.
	1925	
Potassium chlorate	Apr. 11	Increase from 1½¢ to 2¼¢ per pound.
Sugar	June 15	No change.
Bob-white quail	Oct. 3	Decrease from 50¢ to 25¢ per pound.

The status of the more important investigations considered by the Commission during the year 1925 are briefly summarized in the ensuing paragraphs:

Butter.—The principal competing country exporting butter to the United States is Denmark. This butter is relatively high in quality and competes largely with the high-grade coöperative creamery butter produced in the states of Minnesota, Wisconsin, Iowa, Michigan and Illinois. Farm and creamery cost data were obtained in these states and in Denmark late in 1924. The data were summarized in the Statement of Information to interested parties, and a public hearing was held on April 21, 1925. All of the information is now being analyzed by the Commission in the preparation of a report to the President.

Swiss Cheese.—Farm and factory cost data have been received from the centers of the United States producing Swiss cheese, chiefly portions of Wisconsin and Ohio, and from Switzerland. The data were assembled in a Statement of Information to interested parties, and a public hearing was held in December, 1925.

Lace.—An extensive lace investigation is in progress, including the following types of lace: Nottingham lace curtains and nets, Levers, bobbinets, Barmen laces and Swiss embroidered curtains. In addition to field work in the domestic lace industries, cost data were obtained from the centers of production in France, Germany, Switzerland and England. The Statement of Information for interested parties was completed in this investigation, and a public hearing held in December, 1925.

China and Earthenware.—One of the most extensive investigations that the Commission has undertaken is that of china and earthenware. Portions of the domestic cost data were obtained in June, 1925, and foreign costs were obtained in Germany, Czechoslovakia, Holland and England. The foreign cost studies were completed in November, 1925, and the domestic field work will be completed early in 1926.

Halibut, Logs.—The Commission has recently held two public hearings for purposes of Section 315 upon important subjects affecting the Pacific coast, namely, halibut and logs (of fir, spruce, cedar or western hemlock).

The halibut industry in the Pacific Northwest has assumed large proportions in recent years. About 90 per cent. of the halibut catch of the United States is made by American vessels on the Pacific coast, and a large percentage of the Canadian catch is on that coast. Many of the American vessels, however, transfer their catch to the rail head in Canadian ports and ship the halibut in bond free of duty from Canada to the United States.

The Commission obtained cost data for a large portion of the catch in Canada and the United States on both the Pacific and Atlantic coasts, and a public hearing was held in Seattle on August 10, 1925, at which were discussed the many questions involved in the investigation. The report in this investigation has been submitted to the President, and the subject had been taken up by the government of Canada and the government of the United States. The negotiations on the part of the United States have been conducted by the Department of State.

The log investigation was of special interest to the Pacific Northwest also, and after the cost data had been obtained in this area, a hearing was held at Seattle on August 10, 1925, and the report to the President is in course of preparation.

Other investigations which received the active consideration of the Commission during 1925 are as follows: Plate Glass, Pig Iron, Cotton Hosiery, Linseed Oil, Print Rollers, Taximeters, Maple Syrup, Gold Leaf, Men's Sewed Straw Hats, Bentwood Chairs, Rag Rugs, Granite, Glue, Edible Gelatin, Sodium Silicofluoride and Methanol.

Methanol, or wood alcohol, presents a somewhat peculiar case in that the imports are of the newly discovered synthetic methanol, made in Germany from coal tar products, and imported in competition with the long-established domestic industry producing methanol by the distillation of hard woods.

Unfair Trade Practices.—Investigations for purposes of Section 316 (unfair trade practices in the importation of merchandise), and Section 317 (discrimination against the commerce of the United States) have not been so numerous nor so wide in scope as the investigations under Section 315 previously mentioned.

From September, 1922, down to the end of 1925, fourteen applications for consideration under Section 316 have been received, and three investigations were made, and hearings held. In five other instances preliminary examinations have been made which resulted in no further action by the Commission.

Discriminations. — Under Section 317 nine reports dealing with alleged discrimination in twenty-five countries and colonies have been submitted to the President.

Surveys and Reports.—Another major division of the Commission's activities relates to the preparation of surveys and reports, under the general powers of the Commission, upon tariff problems and the operation and effects of the tariff law.

One of the most extensive general reports of the Commission considered in 1925 was the cost of production of sugar beets. This study is based upon detailed farm costs for 2,242 farms in the states of Michigan, Nebraska, Colorado, Montana, Utah, California, Wyoming and Ohio. Not only was cost data included in the report, but an economic survey of the industry has been made. Another extensive report published in 1925 is that concerning the broad silk industry. Much domestic cost-data is included in this report, and a complete survey of the conditions in the industry is made.

The annual Census of Dyes and Coal Tar Products is regularly made by the Commission, and the report for the calendar year 1924 was issued in October, 1925. In addition to production and import statistics a general statement of the prevailing conditions in the dye industry is furnished.

Other surveys and general reports prepared by the Commission in 1925 are as follows: Artificial Silk, Tops and Yarns of Wool, Vegetable Fibers other than Cotton, Worsted Fabrics of Wool, and the Cattle and Beef Industry, with special reference to the trade between Canada and the United States.

Foreign Office.—Another important activity of the Commission is the work of its foreign office. Three research men are permanently stationed abroad, including the chief of the foreign office, with headquarters at Brussels. The more important activities carried on by the foreign agents independently or in coöperation with other experts from the Commission have been in connection with the following subjects: a survey of the artificial silk industry in seven of the countries of Europe; a survey of the tan calk leather industry in eight of the countries of Europe, and studies in the cost of production of eight commodities which were the subjects of investigation by the Commission for purposes of Section 315.

MAGNITUDE AND PROGRESS OF MANUFACTURING

By Howard L. Clark

Statistical Editor, Manufacturers' Record

Value of Manufactures.—Manufacturing industries of the United States are turning out products with an annual wholesale value of over sixty billion dollars. In other words, all of the factories in this country produce commodities valued in excess of one billion dollars every week in the year. So great has been our manufacturing growth that the product of these industries to-day is about six times the annual farm value of all crops raised on all the farms of the country and over three and one half times the annual aggregate farm value of all agricultural products, which includes crops, animals and livestock products. This comparison keeps in sight the fact that the United States is one of the great agricultural countries of the world; and while we consume most of the things we produce, last year over $1,588,000,000 of finished manufactured goods were exported, more than $610,000,000 of semi-manufactures, over $537,000,000 of manufactured foodstuffs and over $392,000,000 worth of crude foodstuffs. The total value of the country's domestic exports last year amounted to $4,497,649,000, more than 35 per cent. of which represented finished manufactures.

Perhaps the magnitude of the manufacturing interests of the United States can better be grasped when we learn that though this country embraces less than 6 per cent. of the world's area, and about 6 per cent. of the world's population, we are supplying a very large proportion of the major industrial needs of the world, such as iron, coal, oil, lumber and cotton.

Our iron furnaces are contributing 60 per cent. of the world's pig iron; our smelters produce nearly 53 per cent. of the world's copper; our saw mills produce about 46 per cent. of the world's lumber; we produce 59 per cent. of the world's steel ingots and castings; 57 per cent. of the world's paper and about 85 per cent. of the world's automobiles, to name only a few manufactured commodities of importance.

In 1919, the latest figures available, the amount of capital invested in manufactures in the United States was over forty-four and a half billion dollars, compared with seventy-eight billions invested in agriculture.

Productive Establishments.—Complete statistics are not available for the manufactures of the country later than those of the census of 1923. These figures embrace all establishments having an annual production value of $5,000 and over. In that year more than 196,000 establishments (the word "establishment" meaning one or more plants owned or controlled by one management), were operating throughout the country. These establishments, in 1923, produced $60,555,000,000 worth of manufactured goods; and the record of industrial activity for the past year clearly indicates that the United States is exceeding all former production figures. Industry as a whole was greatly enlarged to handle the demand created by the war and Europe's needs, some branches having doubled their capacity since 1914. It is true that many of the basic manufactures have not been operating to this enlarged capacity, but they have been running from 80 to 85 per cent. of it much of the time in the last months, and thus have brought about an even greater increase in manufactures to-day than the 1923 census indicates.

New England, long dominant in manufacturing, has been surpassed by the great manufacturing development of New York and Pennsylvania, and the more recent expansion of the Middle Western States, but New England and the Middle Atlantic States produce over 43 per cent. of the nation's manufactured product. New England has continued to expand and perfect its manufacturing, but in the last decade the supremacy of the Northeast as the leading manufacturing section of the country has been challenged by the great growth of manufactures in the Middle West, and in the last two or three years by the devolpment of industry in the Southern States.

Automobiles.—The outstanding feature of the manufacturing progress of the East North Central States is found in the remarkable growth of the automobile industry centered there. Last year this one industry produced 3,243,285 passenger automobiles and 374,317 motor trucks, with a combined wholesale value of over $2,326,000,000. The aggregate wholesale value of motor vehicles and parts amounted to over $3,168,000,000, giving it a position of first rank among the country's manufactures. The amount of capital invested in the motor vehicle manufacturing business in the United States in 1924 was over $1,691,000,000.

Cotton Goods.—The rapid increase in cotton manufacturing in the South is a feature of the industrial development of that section. It is estimated that one billion dollars are invested in Southern cotton mills, and the South now contains over half of the cotton mills, and employs over half of the people engaged in cotton goods manufacture in the United States. These Southern mills produce 52 per cent. of the total value of our cotton goods output, which amounted to $1,901,000,000 for the whole country in 1923; and Southern mills are consuming 68 per cent. of the American cotton used in all American mills.

Radio Equipment.—Another industry which has had a phenomenal growth in the last two or three years is the manufacture of radio equipment and supplies, surpassing the record set by the automobile industry in its rapid advancement. It is estimated that more than one billion dollars are invested in the radio business to-day. About twenty-five hundred radio manufacturers, three hundred Government radio stations and about six hundred private broadcasting stations, variously estimated as reaching from twenty to thirty million American citizens through their daily programs, show the magnitude of this industry as illustrating to what extent specialty manufacturing lines, have developed in recent years along with the major basic industrial growth of the country.

So great has been the manufacturing development of the United States that it is difficult for us to comprehend this stupendous growth and, as this country far out-ranks any other country in the world in this respect, this expansion must indeed be amazing to people in other lands.

Capital and Output.—Fifty years ago the United States produced about $5,000,000,000 worth of manufactured goods. By 1890 this had nearly doubled and we were beginning to be considered a real manufacturing country. Since 1900 the amount of money invested in the manufacturing enterprises of the United States increased from $8,975,000,000 to over forty-five billion, or more than 400 per cent., while the value of the manufactured products of these industries increased during the same period from $11,407,000,000 to more than sixty billion, or 430 per cent. The gain in manufacturing has been steady both in capital invested and in the value of finished products for each census period between 1869 and 1914, with a decided jump following the war inflation of 1919, and a pronounced decline during the post-war depression of 1921, followed by another period of activity culminating in the record figures of to-day which are even surpassing the feverish manufacturing activities of the war

Summary of Manufactures, 1923

COMPARED WITH 1921, 1919 AND 1914

(Compiled from United States Census Reports)

	1923 *	1921 *	1919 †	1914 †
Number of establishments..	196,309	196,267	290,105	275,791
Persons engaged	10,176,750	8,265,821	10,688,849	8,117,895
Proprietors and firm members	147,380	172,871	250,571	259,172
Salaried officers and employees	1,266,137	1,146,380	1,438,219	962,533
Salaries paid	$2,805,450,000	$2,563,103,000	$2,880,868,000	$1,274,438,000
Wage earners (average number)	8,778,950	6,946,570	9,096,372	7,036,247
Wages paid	$11,009,298,000	$8,200,324,000	$10,533,400,000	$4,078,332,000
Value of products.........	$60,555,998,000	$43,653,283,000	$62,418,079,000	$24,246,435,000
Cost of materials.........	$34,705,698,000	$25,336,617,000	$37,376,380,000	$14,368,089,000
Value added by manufacture	$25,850,300,000	$18,316,666,000	$25,031,698,000	$ 9,878,346,000
Primary horsepower	33,094,228	‡	29,410,192	22,307,189

* Excluding all factories producing less than $5,000 annually and automobile repairing which were included in 1919 and 1914.

† Includes all factories producing annually products valued at $500 and over and plants engaged primarily in automobile repairing.

‡ Data not collected, 1921 census.

period in the value of output, and what is more important the goods our plants and workers are turning out now, instead of being materials of destruction when billions of dollars of manufactured products went directly to the service of war, are utilized for the benefit of mankind and the upbuilding of the United States and the world.

Despite the slight decrease in the aggregate value of manufactured products between 1919 and 1923, the annual output of industries, measured in quantities—not values—showed a considerable increase, which has been estimated at 19 per cent. by the Department of Commerce, and, as previously stated, the percentage is greater now than it was in 1923.

On page 560 is given a statistical summary of all manufactures combined in the United States for 1923, with a comparison of the three preceding census years, 1921 immediately following the world war, 1919 during the height of war-created activity and prosperity, and 1914 the first pre-war year.

Bases of Statistics.—Attention is called to the fact that the 1923 and 1921 census figures relate to manufacturing establishments whose output during the year was valued at $5,000 or more, and are not exactly comparable to those of 1919 and 1914. However, the elimination of data for the smaller establishments reported in 1919 and 1914 has only a slight effect on the totals except for the item of number of establishments.

Manufacturing establishments in 1923 numbered 196,309, compared with 196,267 in 1921, 214,383 in 1919 and 177,110 in 1914. The figures for 1919 and 1914 have been adjusted to exclude all factories reporting products having an annual value of less than $5,000 and also the output of automobile repairing establishments, which were not reported in 1921 and 1923. The small increase in the number of establishments reporting in 1923 compared with 1921 and the decrease since 1919 were due in part to consolidations and readjustment after the war following the deflation of 1920 and 1921.

The total number of persons engaged in manufacturing in the United States about equals the number engaged in agriculture and we employ over one million more wage earners in our factories than the total population of industrial Belgium. The average number of wage earners employed in 1923 was 8,778,950, an increase of 26 per cent. compared with 6,946,570 employed in 1921, and the adjusted figures of 9,000,059 in 1919 and 6,896,190 in 1914.

Census reports call attention to the fact that:

> A very much better measure of the actual value created by manufacturing processes is the "value added by manufacture," namely, the difference between the cost of materials (including fuel, mill supplies, containers, etc.) and the factory value of the finished products. This aggregated $25,850,000,000 in 1923, an increase of 41 per cent., as compared with $18,316,000,000 in 1921 and of a little over 4 per cent. as against $25,031,000,000 in 1919. Thus, despite a slight decrease in aggregate value of products between 1919 and 1923, together with an increase in expenditures for wages, the value added by manufacture increased somewhat, this increase being due to a decline in the cost of materials from $37,376,000,000 in 1919 to $34,705,000,000 in 1923. The latter figure represents a decrease of 7 per cent. as compared with 1919, but exceeds by 36 per cent. the corresponding total for 1921, which was $25,336,000,000.

The rated horsepower capacity of engines, water-wheels, electric motors, etc., used for primary power in manufacturing establishments, aggregated 33,094,000 in 1923, an increase of 12 per cent. as compared with 29,410,000 horsepower in 1919, and a gain of nearly 50 per cent. compared with the 22,307,000 horsepower operated during the pre-war year 1914.

Principal Products.—It is significant that among the ten leading industrial groups in value of output that food, clothing, and iron and steel manufactures lead. Topping the list are manufactured food and kindred products for which is reported an annual wholesale value of $9,520,000,000 in 1923. Textiles and their products rank second with an output of $9,487,000,000. Iron and steel and their products, excluding machinery, are in third place with a production of $6,828,000,000 for the year. In these ten industrial groups are found the basic manufactures of the country and the magnitude of their operations explains the solid foundation upon which industrial America rests and its position among the manufacturing nations of the world. The annual output of many of these groups shows a small decline in value compared with the boom period of 1919. With the exception of lumber and allied industries each of the ten groups discussed made a gain in primary horsepower utilized in 1923 compared with 1919. Excepting in the number of establishments, all the groups increased in every item reported compared with the 1921 figures. The amount paid to wage earners during 1923 increased for each of the industrial groups reporting in 1921 and made a gain, compared with 1919, for all groups excepting the chemical and allied-products group and the transportation equipment, air, land and water group. At the bottom of this page appears a compilation of the ten principal manufacturing groups in order of value of output for 1923 compared with former years.

ANALYZED SUMMARY OF MANUFACTURES OF TEN LEADING GROUPS OF INDUSTRIES IN VALUE OF PRODUCTS

(COMPILED FROM UNITED STATES CENSUS REPORTS)

Industry	Year	Number of Establishments	Wage Earners (average number)	Wages Paid	Primary Horsepower	Value of Products
Food and kindred products	1923	51,931	682,318	$ 795,583,000	3,708,438	$ 9,529,773,000
	1921	51,582	608,067	714,901,000	......	8,145,082,000
	1919	69,423	733,664	774,722,000	3,203,106	12,748,348,000
	1914	67,403	536,436	303,345,000	2,503,932	4,977,760,000
Textiles and their products	1923	26,797	1,719,438	1,748,069,000	3,801,701	9,487,184,000
	1921	25,985	1,510,867	1,473,219,000	......	6,963,886,000
	1919	28,473	1,612,060	1,482,879,000	3,254,033	9,226,646,000
	1914	23,364	1,506,197	675,902,000	2,728,084	3,445,481,000
Iron and steel and their products, excluding machinery	1923	6,360	892,635	1,324,548,000	7,202,377	6,828,808,000
	1921	6,255	571,798	731,186,000	......	3,456,390,000
	1919	7,621	858,571	1,244,405,000	6,430,002	5,889,523,000
	1914	6,331	618,349	421,988,000	4,587,816	2,137,628,000
Chemicals and allied products	1923	8,830	384,479	501,187,000	2,739,000	5,706,520,000
	1921	9,425	332,782	433,666,000	......	4,716,827,000
	1919	12,405	460,641	550,262,000	2,424,938	6,090,949,000
	1914	13,229	349,154	225,190,000	1,955,822	2,685,423,000
Transportation equipment, air, land, and water	1923	3,875	606,328	963,404,000	1,625,056	5,333,480,000
	1921	4,273	405,773	591,333,000	......	3,018,155,000
	1919	6,768	858,582	1,259,015,000	1,453,804	5,627,265,000
	1914	7,818	312,562	230,615,000	602,459	1,137,423,000
Machinery (excluding transporation equipment)	1923	12,149	907,961	1,253,960,000	2,301,577	4,728,552,000
	1921	12,395	662,277	832,781,000	......	3,235,075,000
	1919	14,821	998,484	1,240,487,000	2,060,325	4,768,671,000
	1914	13,457	618,737	412,606,000	1,266,608	1,582,409,000
Paper and printing	1923	25,776	527,589	743,198,000	2,742,697	3,769,986,000
	1921	25,355	467,072	637,130,000	......	3,148,747,000
	1919	36,403	509,875	564,510,000	2,345,949	3,012,584,000
	1914	37,196	452,900	296,493,000	2,044,582	1,456,046,000
Lumber and allied products	1923	21,674	931,748	962,542,000	3,336,133	3,633,034,000
	1921	21,393	703,309	670,421,000	......	2,456,608,000
	1919	41,195	863,937	859,832,000	3,409,654	3,113,203,000
	1914	43,452	865,009	446,777,000	3,219,980	1,615,780,000
Metals and metal products, other than iron and steel	1923	7,427	296,514	393,514,000	1,167,903	2,556,999,000
	1921	7,796	211,920	255,503,000	......	1,399,813,000
	1919	10,333	302,154	355,675,000	940,070	2,497,343,000
	1914	9,708	238,246	153,956,000	549,326	1,327,930,000
Leather and its finished products	1923	4,868	344,545	388,630,000	412,998	1,877,654,000
	1921	4,813	280,071	314,412,000	......	1,544,186,000
	1919	6,397	349,362	363,453,000	382,537	2,610,231,000
	1914	6,758	307,060	169,358,000	311,194	1,104,595,000

Summary of Billion Dollar Establishments.—Sixteen individual manufacturing industries produce annually more than a billion dollars each per year. Four of these industries produce annually goods valued at more than two billion dollars. Motor vehicle manufacturing heads the list with an annual output valued at over $3,160,000,000, and iron and steel works and rolling mills are a close second, with a production value of $3,154,000,000. The table on page 564 gives a summary of the billion dollar industrial group in the order of their importance as to annual value of output.

Economies.—In reviewing business conditions of last year Secretary Hoover stated that the manufacturing census taken for the year 1923

> "brings out vividly the rapid progress in industrial efficiency and in elimination of economic waste during recent years. The figures for 1923 when reduced to a quantitative basis (in order to avoid the effect of decreased purchasing power of the dollar) show that our manufacturing output is increased by fully 60 per cent. over that of 1914. It also shows a gain over 1919. Against this large increase in products the number of wage-earners increased by about 25 per cent. as between 1914 and 1923, and it is interesting to note that the horsepower used increased 50 per cent. in the same period. Wages for 1923 and 1924 were generally maintained at about 100 per cent. higher than in 1913, and with the cost of living on a basis of about 70 per cent. over the pre-war level our labor is receiving a large share of the result of this increased efficiency in the highest real wages of our history. The higher real wage has been expressed both in advancing standards of living and in greater savings on the part of the masses of the population."

Sections Compared.—In a study of the industrial development of the country by geographical divisions and states it will be found that the South as a whole (Missouri in this estimate is classed as a Southern state) fared better than any other section of the country, except the Pacific Coast, in the increase in the number of manufacturing establishments. This was achieved in spite of many consolidations of plants in textile centers to bring them under one ownership; they therefore count as one establishment instead of several as formerly listed. The South increased its establishments in 1923 over 1921 by 1.5 per cent. There was an increase of 0.1 per cent. in New England, a decrease of 1.7 per cent in the Middle Atlantic states, an increase of 1 per cent. in the East North-Central states, a decrease of 4.3 per cent. in the West North-Central states, and an increase of 6.2 per cent. for the Pacific Coast.

The value of New England's manufactured products in 1923 was $6,420,000,000, or an increase of 30 per cent. compared with 1921; while the value of the manufactured products of the Middle Atlantic states in 1923 was $19,739,000,000, an increase of 35 per cent. The value of the manufactured products of the East North-Central states was $17,821,000,000, or an increase of 50 per cent. over 1921. The West North-Central states increased the value of manufactured goods from $3,506,000,000 in 1921 to $4,299,000,000 in 1923. In the South Atlantic group of states the value of manufactures in 1923 was $4,238,000,000 compared with $2,985,000,000 in 1921.

Banner States.—New York and Pennsylvania are the leading industrial states of the country. In 1923 the state of New York reported 38,186 manufacturing establishments with an output valued at $8,961,000,000 and Pennsylvania had 19,054 establishments with an annual production of $7,382,000,000. The four states of New York, Pennsylvania, Ohio and Illinois in 1923 produced an aggregate value of manufactures of $26,530,000,000, which is nearly 44 per cent. of the country's total, and $2,284,000,000 more than the total value of all manufactures produced in the United States during the pre-war year 1914. Massachusetts was the only New England state to report an increase in the number of establishments in 1923. New York had a very slight increase in establishments while Pennsylvania reported a loss of 6 per cent. in the number of establishments; but the value of New York's manufactures in 1923 increased only 28 per cent. against a 45 per cent. gain in Pennsylvania. Ohio, Illinois, Michigan and New Jersey followed in order New York and Pennsylvania in the value of manufactured products. Massachusetts is sixth in manufactured output.

ANNUAL PRODUCTION VALUES OF OVER ONE BILLION DOLLARS (1914-1923)

(Compiled from United States Census Reports)

Industry	Year	Number of Establishments	Wage Earners (average number)	Wages Paid	Primary Horsepower	Value of Products
Motor vehicles	1923	351	241,356	$406,730,000	435,545	$3,163,328,000
	1921	385	143,658	221,974,000	......	1,671,387,000
	1919	315	210,559	312,166,000	282,323	2,387,903,000
	1914	300	79,307	66,934,000	104,963	503,230,000
Iron and steel, steel works and rolling mills	1923	489	388,201	637,825,000	4,110,173	3,154,325,000
	1921	494	235,515	324,987,000	......	1,481,659,000
	1919	500	375,088	637,637,000	3,818,167	2,828,902,000
	1914	427	248,716	188,142,000	2,703,596	918,665,000
Slaughtering and meat packing, wholesale	1923	1,397	132,792	167,569,000	382,127	2,585,804,000
	1921	1,184	117,042	152,903,000	......	2,200,942,000
	1919	1,304	160,996	209,489,000	358,522	4,246,291,000
	1914	1,279	98,832	62,136,000	252,079	1,651,965,000
Foundry and machine-shop products	1923	8,531	449,040	642,649,000	1,234,326	2,337,808,000
	1921	9,013	321,363	412,359,000	......	1,565,527,000
	1919	10,934	482,767	622,571,000	1,040,265	2,289,251,000
	1914	10,640	362,471	244,146,000	763,821	866,545,000
Cotton goods	1923	1,375	471,503	396,603,000	2,153,299	1,901,126,000
	1921	1,328	412,058	328,227,000	......	1,278,221,000
	1919	1,288	430,966	355,475,000	1,836,298	2,125,272,000
	1914	1,179	379,366	146,130,000	1,563,823	676,569,000
Petroleum refining	1923	382	66,717	103,834,000	391,154	1,793,700,000
	1921	366	63,189	102,294,000	......	1,727,440,000
	1919	320	58,889	89,750,000	238,906	1,632,533,000
	1914	176	25,366	19,397,000	128,190	396,361,000
Lumber and timber products	1923	9,393	495,932	475,962,000	1,932,091	1,494,462,000
	1921	9,092	364,247	313,487,000	......	902,501,000
	1919	26,119	480,945	489,419,000	2,355,345	1,387,471,000
	1914	27,229	479,786	239,977,000	2,244,909	715,310,000
Clothing, women's	1923	7,046	133,195	176,446,000	27,704	1,406,684,000
	1921	7,061	144,865	185,082,000	......	1,022,743,000
	1919	7,711	165,649	195,296,000	32,421	1,208,543,000
	1914	5,564	168,907	92,574,000	27,874	473,888,000
Electrical machinery, apparatus, and supplies	1923	1,671	234,892	305,455,000	480,238	1,293,002,000
	1921	1,333	161,204	194,242,000	......	833,985,000
	1919	1,404	212,374	238,189,000	438,082	997,968,000
	1914	1,030	118,078	73,806,000	226,320	335,170,000
Printing and publishing, newspapers and periodicals	1923	10,267	116,440	196,644,000	203,454	1,268,502,000
	1921	10,453	107,534	174,359,000	......	1,123,710,000
	1919	17,362	120,381	144,348,000	194,074	924,153,000
	1914	19,317	114,375	88,561,000	186,763	495,906,000
Clothing, men's	1923	4.607	194,820	235,487,000	52,642	1,178,715,000
	1921	4,539	165,206	201,882,000	......	934,776,000
	1919	5,258	175,270	197,822,000	40,198	1,162,986,000
	1914	4,830	173,747	86,828,000	35,252	458,211,000
Bread and other bakery products	1923	18,739	162,615	214,579,000	193,151	1,122,834,000
	1921	20,173	148,500	196,939,000	......	1,089,972,000
	1919	25,095	141,592	158,237,000	165,711	1,151,896,000
	1914	25,963	124,052	76,867,000	106,797	491,893,000
Flour-mill and grain-mill products	1923	5,233	35,223	41,754,000	710,156	1,049,744,000
	1921	6,485	35,378	43,143,000	......	1,179,740,000
	1919	10,708	45,481	50,888,000	875,464	2,052,434,000
	1914	10,788	39,718	24,593,000	821,406	877,680,000
Motor-vehicle bodies and parts	1923	2,122	163,530	252,612,000	463,080	1,013,113,000
	1921	1,974	69,119	96,779,000	......	408,017,000
	1919	2,515	132,556	178,956,000	256,770	692,171,000
	1914	971	47,785	34,993,000	67,912	129,601,000
Iron and steel, blast furnaces	1923	169	36,712	58,935,000	1,832,919	1,007,613,000
	1921	134	18,698	29,370,000	......	419,771,000
	1919	195	41,660	73,769,000	1,581,407	794,467,000
	1914	160	29,356	22,781,000	1,222,273	317,654,000
Boots and shoes, other than rubber	1923	1,606	225,216	250,346,000	128,550	1,000,078,000
	1921	1,505	183,502	204,954,000	......	867,476,000
	1919	1,449	211,049	210,735,000	115,886	1,155,041,000
	1914	1,355	191,555	105,695,000	95,966	501,760,000

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ACTING CHIEF, U. S. DIVISION OF STATISTICAL RESEARCH

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DIVISION XXI

TRANSPORTATION AND COMMUNICATION

IMPORTS AND EXPORTS

By Frank D. Graham
Professor at Princeton University

General Considerations. The external commerce of the United States is in process of adjustment to a series of important changes. The war established our position as a lending nation not only during and immediately after the conflict but for many years to come. The United States is at present the chief capital market of the world and the great loans contracted a few years ago between our government and the governments of the Allied Powers are now being followed by large private investments in foreign securities. These loans must have profound repercussions on our foreign trade, affecting not only its volume and the relation between exports and imports, but also in differing degrees the constituent elements of both of these. The year to year developments in foreign trade are therefore at this time of more than ordinary interest.

Nineteen twenty-five was the first year of the operation of the Dawes Plan for reparation payments by Germany but the sums transferred were not of sufficient magnitude to cause any considerable disturbance in international trade. The trend of the trade currents which these payments will eventually establish is therefore not yet obvious. None the less the confidence inspired by the acceptance of the Plan was a big factor in the investment of American capital abroad and, as a consequence, in our foreign trade. Reference will presently be made to the effect of these loans.

For the first time since the war, foreign trade seems in the past year to have attained what is at least a temporary equilibrium. Ever since the autumn of 1920 gold had been coming into the United States in large quantities. During this time a total of well over a billion dollars moved toward our shores, while the historic function of gold movements in effecting international price adjustments was lost in the spasmodic play of exchange rates. Beginning with the last month of 1924, however, and continuing through the first six months of 1925 exports of gold were in excess of imports and though another reversal occurred in July, there is little evidence that this is likely to continue for any great length of time or involve any very large values. Trade is apparently once more on a fairly even keel, total debits and credits are in approximate balance, and there is a consequent cessation of large transfers of gold.

Total Foreign Trade.—The official figures for the fiscal year ending June 30, 1925, show a total United States foreign trade of $8,688,838,000 as against $7,865,693,000 in 1924 and $7,737,692,000 in 1923. Of the 1925 total, $4,864,667,000 was in exports (including exports of foreign goods) and $3,824,171,000 in imports. Both exports and imports showed increases over the preceding years, but exports grew at the more rapid rate, so that the excess of exports is $1,040,496,000 as compared with $757,619,000 in 1924 and only $175,774,000 in 1923. For several years it has been the expectation of most authorities on international trade that merchandise exports and imports would develop something like a balance, and the growing excess of exports since 1923, amounting last year to more than a billion dollars, comes as a distinct surprise.

Causes of the Rising Excess of Exports.—The causes of this excess of exports are various, but the most important is undoubtedly the unexpectedly large issues of foreign securities which have been taken up in our investment markets. The Farmers' Loan and Trust Company of New York estimates these new capital flotations at $1,007,000,000 in 1924 as against $304,000,000 in 1923, and the pace has been somewhat accelerated in the year just past. Minor factors in the excess of exports are the increase in American tourist travel in Europe and the relative failure in 1924, except in the United States, of those crops which we largely export. The broad tendency since 1921 seems to be toward a gradual increase in both our imports and exports, the former in a steady movement, the latter jerkily, in correspondence with the fluctuating volume of foreign loans taken up in this country. It is probable that in the future such loans of this sort as are consummated will be spread somewhat more evenly. We can then look forward to a stable growth in international trade with a tendency toward an increasing ratio of imports to exports as the interest payments on new borrowings mount up and payments on our war loans are inaugurated by those nations with which we have not yet concluded a refunding agreement.

Exports and Imports by Great Groups.—The exports (domestic) and imports by great groups in the fiscal years ending June 30, 1924, and 1925 were as follows:

DOMESTIC EXPORTS

(In millions of dollars)

Class	1923	1924	1925	Per Cent. of Total		
				1923	1924	1925
Crude materials	1,017	1,302	1,393	26.2	30.8	29.2
Crude foodstuffs and food animals	394	203	483	10.1	4.8	10.1
Manufactured foodstuffs	584	561	577	15.0	13.3	12.1
Semi-manufactures	486	595	646	12.5	14.1	13.5
Finished manufactures	1,396	1,554	1,670	36.0	36.8	34.9
Miscellaneous	6	5	7	.2	.2	.2

IMPORTS

(In millions of dollars)

Class	1923	1924	1925	Per Cent. of Total		
				1923	1924	1925
Crude materials	1,475	1,200	1,430	39.0	33.8	37.4
Crude foodstuffs and food animals	352	385	451	9.3	10.8	11.8
Manufactured foodstuffs	506	530	451	13.4	14.9	11.8
Semi-manufactures	711	658	701	18.9	18.5	18.3
Finished manufactures	716	756	767	19.0	21.3	20.1
Miscellaneous	17	23	22	.4	.7	.6

These figures must be read in the light of special causes peculiar to one year and not operative in another. Thus the exports of crude foodstuffs varies very greatly with the respective crops in any given year in Europe and America. The high figures in this group of exports in 1925 are due almost entirely to the wheat movement. In this single commodity the exports of 1925 were in excess of those of 1924 by $220,000,000, the total excess in this group being only $280,000,000. The increase in this group of exports is almost certain to prove ephemeral. Allowing, then, for special factors of this sort the most striking aspect of the table given above is the steady growth in the exports of finished manufactures. This movement has been in progress for a number of years and there is no evidence of any slackening in its rate. It reflects our increasing industrialization and indicates that the decreasing rates of exports to imports which the future probably holds will be at the relative expense of our non-manufactured exports.

Ratio of American to World Foreign Trade.—According to estimates of the National Foreign Trade Council, the total world foreign trade in 1925 approached, in real as against pecuniary values, to within 5 per cent. of the 1913 volume, but the distribution among the various nations of the world is in proportions very different to that of the pre-war period. There is no reason to suppose that there will be any tendency toward the 1913 ratio of distribution. On the other hand, the norm has doubtless been completely altered by the changes which the war brought about. Our present ratio of exports to world exports is 21.7 as against 15.7 in 1913 (1913 values taken as a base). It would, however, be erroneous to suppose that an increasing or decreasing proportion of the world's foreign trade bears any necessary relation to prosperity. Other countries showing increases in the ratio include France, Italy and China which are scarcely more prosperous as compared with the 1913 situation than Holland (including the Dutch East Indies) and Brazil, both of which show declining ratios. Changes in the volume of foreign trade are, in general, a very poor index of prosperity.

Monopolies in Foreign Trade.—A disquieting development of the year was the increase in control, exerted in one way and another over those commodities which are produced altogether or in large part within the confines of a single political unit. The most striking case was that of crude rubber. Whether as a result of such control or not,—and certainly the control was a factor,—the price of rubber rose to an extraordinary degree during the year. The temporary success of such manipulation is likely to encourage further attempts of the same sort and to provoke international trade wars which can scarcely enure to the advantage of any nation and certainly not to that of the world at large. Some sort of international agreement or control would seem to be the only feasible solution of the difficulty.

CONDITIONS OF INTERNAL COMMERCE

By Frank D. Graham
Professor at Princeton University

Readjustment of Prices.—The volume of commerce depends on three factors: (1) the volume of production, (2) the range of specialization, both individual and regional, and (3) speculation. Only such trade as arises from the first two of these factors contributes appreciably to general prosperity, and production, specialization and trade mutually give rise each to the others. There can be little doubt, for instance, that the high level of productive activity which marked the year 1925 was in part due to the readjustment which took place in the relative prices of agricultural and manufactured commodities facilitating commerce by increasing the purchasing power of the farming population and thus making it possible to utilize more fully existing manufacturing equipment. This is perhaps the most important improvement of the year in the conditions of internal commerce, prices of the two types of commodities having been far out of line ever since the general slump in prices in 1920.

Transportation.—To commerce and productive specialization transportation is vital. There is general agreement that there was a great improvement during the year in the speed with which freight shipments were handled. A symposium by prominent business and railroad men in *Nation's Business* for October, 1925, alleges remarkable gains in this respect. "Hand-to-mouth" buying is becoming the rule, and though such buying has been much maligned, there can be no doubt that the condition which makes it possible is a real social gain by reason of the saving in interest on the investment during transit, the more intensive use of railroad equipment, and the reduction in the amount of capital necessarily devoted to carrying stock in trade.

In addition to this improvement in rail transportation, motor transport has continued to increase in volume and to provide opportunities for a type of commerce which has hitherto been impossible. Such transport is most desirable in districts where there are no rail facilities but it is also extremely useful and is more and more fully employed in the local distribution of commodities, in supplementing existing rail and water service and in long haul transportation of special commodities, particularly those in which the cost of crating is high and can be dispensed with when motor trucks rather than the railroad are used for transportation. (See article on Commodity Transportation by Motor Truck on Public Roads, U. S. Dept. of Agriculture, Vol. 6, No. 6.)

During the year improved highways were pushed forward at an accelerated rate to the great benefit of commerce. The Federal government rendered financial aid in the construction of nearly 9,000 miles of road in the twelve months ending June 30, 1925, as against a total of 32,500 miles from 1917-1924. Meanwhile, in part no doubt consequent thereon, motor truck registrations were growing at an increasing rate. This rate of growth now amounts to about 20 per cent. a year.

Merchandising Methods.—Outside the field of transportation the most significant development in the conditions of commerce in 1925 was probably the augmentation of the business done by merchandising chains relative to the growth of commerce in general.' With the exception of cigar and music chains, this type of merchandising secured a proportionately larger share of the trade in practically every line in which it is a factor. This is undoubtedly due to the real economies which merchandising of this type offers and augurs for the near future the entry of chain store organizations into fields where they do not now operate.

Simplified Practice.—The agitation of the Bureau of Standards of the Department of Commerce for simplified practice and the elimination of unnecessary varieties in standard commodities has borne fruit in the lowered cost of manufacture and sale of these goods. Conferences of appointees of the leading producers in a considerable number of industries have been able to reach agreements leading to the elimination of much futile variety in bricks, bolts, bars (steel) and many other products, though much yet remains to be done.

Little progress was made in the handling of freight in congested centers. Problems of freight movement in and around terminal points are still largely waiting for solution. The economies which would attend railroad consolidation were realized to but a small degree. There seems to be little prospect of the railroads voluntarily undertaking the consolidations urged upon them and their struggle for competitive advantage, whatever its virtues, leads slowly, if at all, to desirable terminal arrangements.

Monetary and banking conditions on which commerce is so highly dependent were favorable in 1925. Credit was readily available for any sound project and the stability of general prices was substantially preserved. The danger of inflation was reduced by the cessation from January to July of the continuous stream of gold imports which had been flowing since 1920, and though imports were resumed in the later months of the year, they were not in sufficient volume seriously to affect the preexisting situation.

XXI. TRANSPORTATION AND COMMUNICATION

HIGHWAYS AND MOTOR ROADS

By Thomas H. MacDonald

Chief of Bureau of Public Roads, Department of Agriculture

CONSTRUCTION

Mileage of Roads.—The total mileage of highways in the United States on January 1, 1925, according to statistics compiled by the Bureau of Public Roads from reports received from the several State highway departments, was 3,002,916 miles, of which 259,721 miles are included in the systems of State highways designated for improvement under the supervision of the State highway departments. The balance of 2,743,195 miles consists of rural roads of local importance mainly, supervision over which is vested in the county and township authorities.

Mileage Improved.—On the same date 128,347 miles of the State highways were improved with some form of surfacing; 35,279 miles were graded and drained as the first stage of an improvement which will be completed by surfacing as traffic demands and funds for the purpose become available. The balance of 96,095 miles of the State highway systems was partially graded and generally unimproved earth road.

The rural roads under the supervision of the local authorities, at the beginning of the year 1925 included 339,559 miles of surfaced roads, 201,015 miles of unsurfaced earth roads improved by grading and draining in accordance with engineering standards, and 2,202,621 miles of unimproved earth roads.

The character of the improvement of the roads of the two classes at the beginning of the year is indicated by the following table which gives the mileage of the several types of surfacing.

Type of Surfacing	State Highways	Local Roads	Total
	Miles	Miles	Miles
Sand-clay	10,043.5	53,638.4	63,681.9
Gravel	58,357.1	185,925.0	244,282.1
Waterbound macadam	5,344.1	54,890.6	60,234.7
Surface-treated macadam and gravel	13,891.6	12,789.1	26,680.7
Bituminous macadam	9,686.5	7,852.6	17,539.1
Bituminous concrete	4,453.0	2,990.5	7,443.5
Sheet asphalt	771.4	1,488.6	2,260.0
Portland cement concrete	22,783.6	8,362.8	31,146.4
Brick	2,882.0	1,437.4	4,319.4
Wood, asphalt and stone block	134.5	187.2	321.7
Miscellaneous	......	9,996.3	9,996.3
Total	128,347.3	339,558.5	467,905.8

Annual Gain.—During 1924, a total of 31,541 miles were surfaced by all States and counties, of which 17,207 miles were on the State highway systems. The mileage built to established grade and drained by the States and counties was 13,689 miles; by the State highway departments alone the mileage so improved was 5,957 miles. The total mileage improved to some degree during the year was 45,230 miles. This mileage includes that improved under the immediate supervision of the State highway departments with Federal aid.

Records of the mileage improved during 1925 are not yet available; but judging from the mileage of Federal-aid roads constructed during the fiscal year ending June 30, 1925, the accomplishment of 1925 has been at least as great and probably greater than that of the preceding year. The 11,329 miles of Federal-aid roads completed during the last fiscal year established a new record for the cooperating Federal and State Governments, exceeding by more than a thousand miles the largest previous year's performance, that of 1922.

The Federal-aid road construction work of the fiscal year 1925 brings the total mileage completed since the passage of the first Federal-aid road act in 1916 up to 46,486 miles; and, in addition to the mileage completed, a great deal of work had been done on the 12,463 miles which at the close of the fiscal year were under construction. This is indicated by the fact that 3,248 miles were completed between the end of the fiscal year on June 30 and November 1. With the addition of this mileage recently completed the result of the coöperative work to November 1 is the completion of nearly 50,000 miles of highway.

FEDERAL AND STATE AID

The Federal-aid Highway System.—The Federal-aid highway system designated by the several State highway departments and approved by the Secretary of Agriculture in accordance with the Federal highway act of 1921 includes at present 178,797 miles. The limiting mileage prescribed by the law and ultimately to be included in the system is 7 per cent. of the total mileage of highways on record in the United States at the time of the passage of the law. This limiting mileage is 200,349 miles.

On October 31, as indicated above, 49,734 miles of this system had been constructed either as some form of surfaced highway or as graded and drained roadbeds preparatory to further improvement. On the same date 12,187 miles were under construction with Federal aid and 2,230 miles had been approved for construction by the Secretary of Agriculture. Practically all of this mileage is on the Federal-aid system, there being only a small mileage constructed prior to 1921 which is not included. Up to this date, therefore, a mileage equivalent to approximately one-third of the limiting mileage of the system had already been constructed or undertaken for improvement.

State Highway Departments Without Federal Aid.—In this category had been constructed or undertaken up to January 1, 1925, approximately 65,000 miles, which added to the mileage improved with Federal assistance indicates that the initial improvement of the system is approximately two-thirds completed. It must be borne in mind, however, that the improvement to date includes a considerable mileage of roads which have been only graded and drained and an additional mileage improved with low types of surfaces such as sand-clay and gravel. It will be necessary to add to these roads as traffic increases surfaces adequate to withstand the loads which ultimately will be carried by these roads—the most important in the country. It will also be necessary, as funds become available, to eliminate grade crossings and replace existing temporary bridges with structures of durable design. Because of the pressing demand for extension of improved mileage this necessary work is, in some cases, being held in abeyance.

FINANCE

Revenues and Expenditures.—Reports of revenues collected and expenditures made for highways by the States and counties during 1925 are not yet available. In 1924, the total State revenues were $555,397,045, of which $38,367,202 accrued from the taxation of property, $101,653,327 from bond issues, $174,816,973 from motor vehicle license fees, $47,810,615 from gasoline taxes, $91,400,832 from the Federal Government in the form of Federal aid for road construction completed, $87,998,486 by transfer from the counties, and $13,349,610 from miscellaneous receipts. In addition, the States had on hand at the beginning of the year a balance of funds from the previous year amounting to $156,826,702, so that the total of funds available to the State highway departments during the year was $712,223,747.

The estimated total revenues of the counties during the same year were $626,404,155, bringing the total revenues up to the estimated amount of $1,338,627,902.

The estimated total expenditure by the States, counties and Federal Government during the year was $1,180,005,000. Of this amount approximately $600,541,000 was expended by the State highway departments exclusive of the $91,400,832 expended by them for which they were reimbursed by the Federal Government; and approximately $579,464,000 was expended by the counties and other local governments. All these revenues and expenditures are exclusive of the revenues and expenditures of municipalities for city streets.

Federal Expenditure.—During the fiscal year 1925 (terminating June 30, 1925) the Federal Government expended $95,749,998. This was probably somewhat less than one-tenth of the total highway expenditure of the nation during the same period. The total Federal payments for the 49,734 miles of Federal-aid roads completed up to October 31, 1925, were approximately $402,206,000. The total cost of these highways was approximately $910,536,000, the difference between this and the Federal payments being the contribution of the States.

The Federal funds authorized by Congress for expenditure during the fiscal year 1926 (ending June 30, 1926) and apportioned to the States are $73,125,000. The total of funds appropriated, or authorized and to be appropriated as needed, since the establishment of the Federal-aid policy in 1916, is $598,250,000. Of this amount, as indicated above, approximately $402,206,000 have been expended upon the roads which have been entirely completed; approximately $124,122,000 are definitely allotted to the roads which are under construction; and $18,206,000 are allotted to the projects which have been approved for construction; leaving a balance of approximately $53,716,000 unobligated on October 31, 1925. This amount will be drawn upon for allotment to projects during the balance of the fiscal year.

DESIGNATION OF UNITED STATES ROUTES

Connected System.—Important for the year 1925 is the designation of a connected system of 75,884 miles of main interstate roads as United States routes which will be numbered in all States as continuous routes and uniformly marked with standardized direction and warning signs for the better guidance of interstate travelers. With more than 18,000,000 motor vehicles now registered the volume of interstate travel has already reached large proportions, and it is rapidly increasing.

Recognizing this condition the American Association of State Highway Officials in 1924 addressed a resolution to the Secretary of Agriculture calling upon him to appoint a board to designate a system of through routes and to devise a comprehensive and uniform scheme of marking the routes in such manner as to give them a conspicuous place among the highways of the country as roads of interstate and national significance.

United States Routes.—The 75,884 miles of road selected which will hereafter be known as United States routes include 145 routes, those running east and west being designated by even numbers and those running north and south by odd numbers. This designation has been made by a board of twenty-four State and Federal highway officials appointed in March, 1925, by the Secretary in response to the resolution of the State officials.

The more important of these routes are 10 east-and-west routes and 11 north-and-south routes which extend either entirely across the country or the better part of the country's width and length. The other routes are intermediate between these most important arteries or serve as alternate or cross-over routes. In some instances these roads terminate at the Canada line and are resumed at another point in Canada.

Markers.—All routes will be marked with the standard direction and warning signs which are of two general classes. One group, the danger and caution signs, will consist of signs of four different shapes representing as many degrees of danger. These will have a yellow background with black letters and symbols. The other group will include the standard route markers in the form of a United States shield and directional and informational signs. All signs in this group will have a white background with black letters.

The report of the Joint Board recommends that all of the signs, with the exception of the route marker, be used on all State highways in order to familiarize the public with them.

The use of the United States shield as a route marker is to be restricted to United States routes and no other type of route designation is to be permitted on such roads.

RAILROADS

By Joseph E. Cummings
Professor at University of Minnesota

ROAD AND EQUIPMENT

The railways of Classes I, II and III operated 258,444 miles of road in the United States in 1924, as compared with 259,705 miles in 1916 and 230,494 miles in 1908. The mileage of all tracks operated in 1924 was 415,099 as compared with 397,014 in 1916 and 333,646 in 1908. During the twelve months ended November 30, 1925, the Commission issued certificates authorizing the construction of 909 miles of new line and the abandonment of 652 miles of existing line.

In 1924 the total equipment of the carriers consisted of 69,459 locomotives, 2,411,462 freight cars and 57,456 passenger-train cars. This compares with 69,595 locomotives, 2,329,475 freight cars and 55,193 passenger-train cars in 1916. The figures for 1908 were 57,698 locomotives, 2,100,784 freight cars and 45,292 passenger-train cars. In comparing these figures, the following facts should be borne in mind: the average tractive power of the locomotives in use in 1924 was 39,522 pounds, in 1916 it was 32,840 pounds and in 1908, 26,356 pounds; the average freight car capacity in 1924 was 44.2 tons, in 1916 it was 40.9 tons and in 1908, 34.9 tons.

The American Railway Association reports that 1492 new locomotives were placed in service during the first ten months of 1925, with an estimate for the full year of about 1700.

EMPLOYEES

For the fiscal year ended June 30, 1925, the average number of railway employees was 1,765,170. The average annual compensation per annum was $1,624. These employees were classified as follows.

Class	Average Number	Average Compensation per annum
Officials and assistants	16,374	$5261
Professional, clerical and general:		
Daily basis	50,954	2195
Hourly basis	230,437	1491
Maintenance of Way:		
Daily basis	4,739	2900
Hourly basis	381,437	1075
Maintenance of equipment and stores:		
Daily basis	17,053	2959
Hourly basis	513,537	1476
Transportation (train and engine)	318,515	2332
Transportation (yardmasters, etc.):		
Daily basis	6,772	3107
Hourly basis	17,460	1831
Transportation (all other):		
Daily basis	26,958	1180
Hourly basis	180,934	1483
Grand Total	1,765,170	$1624

RAILROAD EARNINGS

The total railway operating revenues for Class I steam railways, excluding switching and terminal companies, for the last full calendar year, 1924, amounted to $5,921,490,100 as against $6,289,580,027 for 1923. This is a decrease of 5.85 per cent. in 1924 compared with the preceding year. Operating expenses for 1924 were $4,507,845,037 as against $4,895,166,819 for 1923, a decrease of 7.91 per cent. Net railway operating income in 1924 was $973,870,978 and in 1923 the corresponding figure was $961,955,457. This is an increase of 1.24 per cent. for 1924 over 1923. It must be borne in mind that the capital devoted to transportation was substantially increased between these two dates. The operating ratio for 1924 was 76.13 which was 1.70 less than for 1923. The largest amount of net railway operating revenue ever earned by our steam railways in a calendar year was in 1916, when the amount was $1,040,084,517. This exceeded the 1924 earnings by 6.37 per cent. The operating ratio in 1916 was 65.54 as against 76.13 in 1924. The Interstate Commerce Commission suggests that this difference in results is largely due to the increased cost of labor and materials and higher taxes. For example, in 1916, about 41 per cent. of railway operating revenue went to labor while in 1924 the corresponding figure had risen to nearly 48 per cent. The steam railway tax bill in 1916 was $163,450,852, and in 1924, $342,459,598. This is an increase of 109.52 per cent. between 1916 and 1924.

The net railway operating income for the eight months ended with August, 1925, was $651,883,260; that for the corresponding period of 1924 was $554,886,471. Thus for the period for which data are available, the year 1925 shows an increase of 17.48 per cent. over the corresponding period of 1924. The first eight months of 1925 also show an increase of 5.32 per cent. over the like period for 1923, the calendar year of largest total revenues and heaviest volume of traffic. The net railway operating income for the first eight months of 1923 was $618,964,978. These improved results have been largely accomplished by the lowering of the operating ratio, which for the eight months' period of 1925 was 75.81 as compared with 78.12 for 1924 and 78.38 for 1923. It is indicated from current reports of freight-car loadings that the traffic records of 1925 are likely to run very high.

RAILWAY CAPITALIZATION

According to the provisions of Section 20A of the Interstate Commerce Act as amended in 1920, carriers subject to the Act are required to secure permission from the Interstate Commerce Commission before issuing securities, which run for a longer period than two years. During the twelve months ending November 30, 1925, the Commission received 267 applications from railways to issue or assume liabilities in respect to securities. The total authorized during this period amounted to $907,777,854.06. This total was made up as follows:

Preferred stock	$ 17,225,330
Common stock	27,992,169
Bonds, collateral-trust ...	23,000,000
Bonds, mortgage	648,240,866.32
Debentures	7,183,944.75
Notes	40,297,029.41
Equipment obligations ...	140,048,514.58
Receivers' certificates	3,790,000
Total	$907,777,854.06

In addition, the Commission received notification, as required under paragraph 9 of Section 20A, of the issue of notes maturing within two years, in the aggregate sum of $78,270,289.56.

On November 30, 1924, the total railway capital actually outstanding amounted to $21,744,682,277. Of this $12,438,003,582 consisted of funded debt and $9,306,678,695 of stock. Adding the new issues during the current year the total capitalization as of November 30, 1925, would be $22,608,373,101. Of this total $13,256,476,907 consisted of funded debt and $9,351,896,194 of stock. These totals do not include the notes and receivers' certificates issued during 1925, as listed above.

RECOVERY OF EXCESS OPERATING INCOME

Under the recapture provisions (Section 15A) of the Transportation Act of 1920 the carriers are required, under certain conditions, to pay into the Treasury of the United States to the credit of the General Railroad Contingent Fund, one-half of all excess net operating income. A carrier is considered to have excess operating income when the amount exceeds a certain per cent. (now 5¾) of the value of their property devoted to the service of transportation. During the ten months ending November 30, 1925, thirty-three carriers paid into this Contingent Fund the total sum of $732,448.34. Prior to that time a total of $4,955,197.27 had been paid in to the fund,—making the total of such payments, up to November 30, 1925, $5,687,645.61. Interest earnings on the fund have brought the total up to $5,941,339.14. As the bulk of these payments has been made under formal protests and reservations this fund has not been available for the purposes contemplated by the statute.

RAILWAY VALUATION

The valuation of the railroads as required by the 1913 amendment (Section 19A) to the Interstate Commerce Act has advanced more rapidly during 1925 than for several preceding years. The slacking in the valuation work was due to inability to maintain a proper force during the war and to lack of funds since the end of the war. A bill approved, March 3, 1925, carried a substantial increase in funds for valuation work. These additional funds were provided in order to carry out a plan to complete the valuation work within a three-year period, beginning July 1, 1925. By October 31, 1925, the Bureau of Valuation had completed the preliminary underlying reports (Accounting, Engineering, and Land) on practically all the steam railroads in the United States. Of the underlying reports completed on October 31, 1925, 63 per cent. of the accounting reports, 70 per cent. of the engineering reports, and 64 per cent. of the land reports have been corrected and made final for use in preparing tentative valuation reports. Tentative valuation reports have been issued on 51.46 per cent. of the mileage and the work on the remaining mileage is well advanced.

Hearings on protests against tentative valuations were concluded during the year in 62 cases covering 25,784 miles of road, or 10.6 per cent. of the total mileage. This brings the total number of cases in which hearings have been completed up to 212, embracing 43,600 miles or approximately 18 per cent of the total. Sixty-four cases, covering 26,469 miles of road, have been partly heard.

During 1925 fifty-three final value reports, representing 4,929 miles of road, were issued. This brings the total number of miles on which final value reports have been issued up to 9,325 or 3.8 per cent. of the total mileage. In addition, valuation reports covering 1,733 miles of road have become final, during 1925, through lack of protest. Reports are now final on 5.5 per cent. of the entire mileage of the country.

The Interstate Commerce Commission's valuation order No. 3 requires carriers to keep a record of additions, betterments, and retirements made subsequent to the date of the primary valuation and to render annual reports covering such matters. During the year a large force has been engaged in checking these reports in Washington and also on the carrier's property.

HOCH-SMITH RESOLUTION

By joint resolution of Congress, approved January 30, 1925, the Commission was authorized and directed to make a thorough investigation of the rate structure of common carriers subject to the Interstate Commerce Act. The resolution is as follows:

"*Resolved by the Senate and House of Representatives of the United States of America in Congress assembled.* That it is hereby declared to be the true policy in rate making to be pursued by the Interstate Commerce Commission in adjusting freight rates, that the conditions which at any given time prevail in our several industries should be considered in so far as it is legally possible to do so, to the end that commodities may freely move.

"That the Interstate Commerce Commission is authorized and directed to make a thorough investigation of the rate structure of common carriers subject to the interstate commerce act, in order to determine to what extent and in what manner existing rates and charges may be unjust, unreasonable, unjustly discriminatory, or unduly preferential, thereby imposing undue burdens, or giving undue advantage as between the various localities and parts of the country, the various classes of traffic, and the various classes and kinds of commodities, and to make in accordance with law, such changes, adjustments, and redistribution of rates and charges as may be found necessary to correct any defects so found to exist. In making any such change, adjustment, or redistribution, the commission shall give due regard, among other factors, to the general and comparative levels in market value of the various classes and kinds of commodities as indicated over a reasonable period of years, to a natural and proper development of the country as a whole, and to the maintenance of an adequate system of transportation. In the progress of such investigation the commission shall, from time to time, and as expeditiously as possible, make such decisions and orders as it may find to be necessary or appropriate upon the record then made in order to place the rates upon designated classes of traffic upon a just and reasonable basis with relation to other rates. Such investigation shall be conducted with due regard to other investigations or proceedings affecting rate adjustments which may be pending before the commission.

"In view of the existing depression in agriculture, the commission is hereby directed to effect with the least practicable delay such lawful changes in the rate structure of the country as will promote the freedom of movement by common carriers of the products of agriculture affected by that depression, including livestock, at the lowest lawful rates compatible with the maintenance of adequate transportation service. *Provided,* That no investigation or proceeding resulting from the adoption of this resolution shall be permitted to delay the decision of cases now pending before the commission involving rates on products of agriculture, and that such cases shall be decided in accordance with this resolution.

"Approved, January 30, 1925."

Pursuant to that resolution the Commission instituted, on March 12, 1925, a general investigation in accordance with this legislation. Hearings have been conducted throughout the year, but because of the broad scope of the investigation the work will require a considerable amount of time for completion.

RAILWAY CONSOLIDATION

In accordance with the requirements of Section 5 of the Transportation Act of 1920 the Interstate Commerce Commission prepared a Tentative Plan for the consolidation of all the railways into nineteen systems. This plan was served on the carriers August 3, 1921. Hearings were then conducted on the plan at various points throughout the country from April 24, 1922, to December 4, 1923. Examiners of the Commission were present at all these hearings and one or more of the Commissioners were present at most of them. February 9, 1924, was the last day on which briefs could be filed. During this period, eighty days were devoted to taking testimony and six days to hearing oral arguments. Thus, a total of eighty-six days were devoted to making the record on which the Commission is to base its "final" plan.

On February 4, 1925, the Commission addressed a letter to the chairman of the Senate Committee on Interstate Commerce in which the majority of the Commissioners expressed doubt as to the wisdom of the provisions of the law which now require them to adopt a complete plan to which all future consolidations must conform. They stated that they believed that results as good, and perhaps better, are likely to be accomplished with less loss of time if the process of consolidation is permitted to develop, under the guidance of the Commission, in a more normal way. On page 13, of its annual report for 1925, the Commission suggests that existing law be amended so as to accomplish the following results:

"(1) Relieve the Commission from its present duty of adopting a complete plan of consolidation.

"(2) Make unlawful any consolidation or acquisition of the control of one carrier by another in any manner whatsoever, except with the specific approval and authorization of the commission. The purpose of this provision is to make certain that the process of consolidation will in all respects be subject to the control and guidance of Federal authority. Without such a prohibition it will be claimed that such consolidations or acquisitions of control as are not in conflict with the Federal antitrust laws may be effected, as was done in the Nickel Plate case, under State authority and without Federal approval. Whatever the merits of the Nickel Plate consolidation, it must be obvious that the possibility of consolidations or acquisitions of control thus consummated means a division of authority and responsibility which is likely to be destructive of any well-ordered and consistent control of the process of consolidation in the public interest.

"(3) Give the commission broad power to approve or disapprove such consolidations or acquisitions of control as are proposed. Before approving, the commission must find that the consolidation or acquisition—

"(a) Will be in the interest of better service to the public, or economy in operation;

"(b) Will not unduly restrain competition or be in any other material respect inconsistent with the public interest; and

"(c) Will conform to the provisions of paragraph 4, which prohibit a capitalization of the consolidated company in excess of property value.

"It may seem unduly drastic to require a finding that the consolidation or acquisition will not be inconsistent with the public interest in any material respect, but it will be noted that the commission is not restricted to the approval or disapproval of the consolidation or acquisition as proposed, but is authorized to approve 'with such modifications and upon such terms and conditions' as it shall find just and reasonable. If what is proposed will promote the public interest in certain respects but not in others, it need not be wholly rejected but may be approved in a modified form which will eliminate the objectionable features.

"(4) The commission is specifically authorized to disapprove a consolidation or acquisition upon the ground that it does not include a carrier, or all or any part of its property, which ought to be included in the public interest and which it is possible to include upon reasonable terms. One of the criticisms of such consolidations or acquisitions as have been proposed or suggested has been that they do not take care of the weak lines, although the merger of weak with strong lines is one of the ends which Congress has apparently had in mind. The specific provision above described will, it is thought, enable the commission to require attention to be directed to this phase of the matter, which otherwise might be neglected. The commission is also specifically authorized to make it a condition of any consolidation or acquisition that 'existing routes and channels of trade and commerce shall be maintained.' This provision has been inserted to remove such doubts as have been raised with respect to our power to attach such a condition.

"(5) The commission is required to preserve 'all records and other evidence heretofore taken and now in the files of the commission, under the terms of this section as heretofore enacted' and is authorized to utilize such records and evidence in reaching its conclusions with respect to any consolidation or acquisition proposed. This provision will enable the Commission to avail itself of the very valuable information which has been gathered in connection with the consolidation-plan proceeding.

"(6) The provision now in subparagraph (b) of paragraph 6 of Section 5 has been retained in somewhat modified form. This is the provision which limits the total capitalization of the consolidated company to the value of the combined properties. The thought underlying the modification is that it may be possible to determine value for the purposes of this provision more expeditiously than is possible under the valuation procedure prescribed in Section 19A. It should be understood, however, that even with this modification this provision is likely to cause material delay in the process of consolidation. The safeguard provided by the provision is a desirable one and the question which must be faced is whether delay in accomplishing consolidations is more objectionable than the absence of such a safeguard."

In its annual report for 1924 the Commission stated that the work of preparing the complete (final) plan of consolidation was progressing. However, on the basis of the letter of the Commission to the Senate committee, it would appear probable that the final plan will not be announced until Congress has had time to consider the proposed amendments to the consolidation provisions of the regulating Act.

MERCHANT MARINE

By Peter Bain

Editor of "Shipping," New York

CONDITIONS

Post War Period.—The marine transportation affairs of the world had probably reached the lowest ebb ever recorded in 1925. The reaction from the immediately previous years of uncertainty and the contrast with the hectic boom years that lasted through and directly followed the Great War had made themselves acutely apparent during the twelve dull months that have just come to a close.

Shipping men had just passed through a lean and hungry period of depression in all departments. Rates had been all "shot to pieces" and as regards Conferences to maintain or at least steady them, these, figuratively speaking, passed away over night. Trans-Atlantic steamship lines particularly, operating under the heavy handicap of huge overhead and small aggregate traffic—passenger and freight—together with a further raising of the Immigration Law barrier, had a hard and strenuous time in making ends meet. In not a few cases, an alarming gap appeared between income and expenditure. Even solidly substantial and old established ship lines abroad that had always earned a fair return on the invested capital were in numerous instances lucky to break near even.

When 1925 dawned, the great machine created because of our wartime emergency still lumbered along with its topheavy burden of unnecessary personnel, although valiant attempts had been made in the preceding twelve months to reduce it and not without some considerable measure of success. Some of the best shipping brains available had been drafted for various responsible positions and it cannot be denied that they set themselves heroically to their task.

Coastwise Trade.—Our protected coastwise trade, probably more than any other, was showing renewed vitality and so far had not been too crowded to allow of fair earnings being made by the few lines participating. The depression in practically every other direction made scouting for remunerative opportunity the serious business of those firms whose fleets were gradually being laid up, either because of lack of traffic or the utter impossibility of even meeting overhead at prevailing rates. During the past twelve months the result of the scouting has been very much in evidence; in a word, our coastwise and intercoastal trade has not only maintained its high degree of traffic reputation but has increased it many-fold, largely, we should say, because of the many new lines now engaged in it and the vastly increased number of scheduled sailings offered. Our coastal and intercoastal services are becoming, if anything, just a bit crowded, not so much for comfort or sea room as for satisfactory revenue to go round.

Foreign Trade.—Government-owned ship services continue to be maintained on regular schedule between all leading United States ports and the principal trade centers and ports of the world but, unfortunately, on a far from remunerative basis in most cases, whether the service be combination passenger and freight, or freight only. Foreign lines still retain the major portion of our export and import commerce, notwithstanding the earnest, well-directed and concentrated effort being made to secure for American ships their equable share. Establishment and permanent consolidations of such an eventuality are, of course, impossible of "overnight" achievement, so to speak, and perhaps we are finding it so.

Long establishment, intimacy with every phase of and factor entering into marine transportation are all on the side of and favorable to our competitors and, while there is much we should be able to show them (commerce and industry, to which it has applied itself), the more familiar we allow ourselves to become with their methods and devices and the more we appropriate their ideas when worthwhile and applicable, just so much sooner will our maritime ambitions be realized, our revenues and expenditures occupy their proper relationship and our national pride and prestige be soothed and reasserted, respectively.

Success in Private Ownership.—Private owners are now displaying a much greater interest in Government-owned ships than at any time since hostilities ceased in Europe, reasoning, probably, that with prices right, no better way of getting Washington out of the shipping business could be devised. Again, it is generally agreed that the realization of our dream of and ambition for a merchant marine worthy of our world importance nationally, must rest on the shoulders of private ownership, and it certainly appears that the latter have so decreed. The past year witnessed the greatest speeding-up effort yet made to place overseas services entirely in private hands and while the actual transfers accomplished may not have fully measured up to anticipations, yet judging from the number of sale transfers pending and projected, the year 1926 promises to be a banner one.

Overseas Sales to Private Owners.—Bearing then in mind our desire to possess a merchant marine in world trade, relatively and ultimately as active, large and prosperous as our coastwise and intercoastal fleets, it does not seem as though we had gotten as far as we had hoped and anticipated. Our coastwise and intercoastal fleets, it will have been noted, are privately owned and operated. This holds good to only a very limited extent in our world trade and commerce. During the past year, only a few individual vessel units and small fleets, comparatively, for overseas trade, were transferred to private owners, and in all cases with the stipulation that American Registry be retained for a number of years. Two examples of transfer from Government ownership to private ownership, for ocean or international trade, were those of the American Export Line Mediterranean Service and fleet to the Export Steamship Corporation of New York City, and the Pan-American Line South America Service and fleet to the Munson Steamship Lines. The purchasers in each instance had been operating for the Shipping Board under what is known as the MO4 managing agency agreement. Another important sale, consummated in almost the closing hours of 1925, was that of the American-South Africa Line, consisting of 5 ships averaging 8,600 dead weight tons, to John M. Franklin, representative of a powerful corporation being formed with the above fleet nucleus to operate and maintain a regular service between American and South African ports. The sale price was $780,000.

Investors Showing Interest.—The passing of our Government-owned fleet into private ownership suggests immediately the passing of money from the latter to the former. Times have most surely changed materially in less than a decade, for then it was a frequent and favorite argument of interests hostile to the development of an American Merchant Marine that no money could be pried loose for investment in American shipping, of all shipping, although readily available for and handed out to, if not less worthy objects, then less patriotic ones. It may not, however, be as generally known as it should that a great deal of American money is now being invested in ocean steamship services and enterprises and not a little is being placed with enterprises under foreign flags, notably the British, Dutch, German and Scandinavian. It cannot be longer pretended that ocean trade is such that only the "cheap money" of nations of Europe can profitably undertake it. Much important financing of American steamship enterprises has been successfully carried out since 1921 in spite of which there is money available on occasion for the use of European shipowners.

Get-Together on Merchant Marine.—Possibly at no time since completion of our national war-time fleet has the disposition of that fleet so exercised the minds of our business community. Early in the year, the Chamber of Commerce of the United States sought the coöperation of every interest directly or indirectly related to ships and shipping in formulating a plan or plans whereby greater progress would be assured in the development of our foreign trade and, through the latter, the greatest possible utilization of vessel tonnage of American construction and registry. Regional conferences were held during the summer and early autumn months in the principal cities of the Great Lakes, the West, the Pacific Coast, the Southern States and in New York City.

Committees.—The result of the views and recommendations advanced at these regional conferences by representative American business men was embodied through the agency of the National Chamber of Commerce in the reports of four committees as follows: (1) Relation of the Merchant Marine to American Foreign Trade and National Defense; (2) Government Regulatory and Administrative Relations to the Shipping Industry; (3) Government Aid to Shipping; (4) Disposal of Government-Owned Merchant Ships. These reports, in brief, emphasized the need of placing the whole government-owned merchant fleet into private hands as soon as possible without sacrifice of any of the essential routes of commerce, also the vital need of a merchant marine for national defense, much in excess of our coastwise tonnage. They also strongly upheld national aid to American overseas shipping—the one unprotected American industry—not through a general ship subsidy system but through mail subventions and contracts compensating regular lines and services.

Conference Findings.—The reports came up for discussion at a National Merchant Marine Conference assembled in November at Washington, at which the representation of shipping men was a minor quantity. The majority of conference members consisted of manufacturers, merchants and bankers, from North, South East and West, the Middle West having a notable quota. In a carefully prepared address, Secretary Hoover expressed his views on the type of merchant marine needed by the United States and the organization best suited for Government marine activities. He asserted that the Shipping Board had been burdened by too diversified responsibilities and that every member of the Board, if left alone, would probably have made a success of our merchant marine. His judgment was that the whole fleet and associated property should be transferred to the Fleet Corporation and that the President of the latter should be appointed by the President of the United States, subject to confirmation by the Senate and should be solely responsible to the President. The function should not be incorporated into the Department of Commerce which is a service agency to the whole American Merchant Marine, whether private or governmental. Secretary Hoover's recommendations as a whole were very favorably received by the members of the Conference and as regards the reports of the various committees these were approved with but slight changes and affirmed as the expressed views of American business.

Pending Legislation.—An effort will doubtless be made during the present session of Congress and the Senate to secure consideration of the reorganization program of Secretary Hoover, indicated above. That there will be obstacles to overcome is certain but, in view of the importance of the issue, an enlightened settlement is hoped for. The problem requires deliberate and impartial treatment.

Protection of Coastwise Trade.—The past year has been a remarkable one in many general respects. Assertion of our determination to uphold our coastwise laws against all comers was demonstrated when the Lamport and Holt Steamship Co. of Liverpool, England, was fined $110,000, for what was considered a gross violation of the Coastwise Laws of the United States, when their vessel the *Voltaire*, transported from Philadelphia to Boston and return via the ports of Halifax and St. John, several hundred members of the Order of Elks who went to Boston to attend the annual meeting of their organization. The amount of the fine was later reduced to $25,000 and was paid. This is regarded as a salutary warning to foreign steamship interests in general against making any further effort to ignore or attempt to nullify the coastwise navigation laws of the United States.

PANAMA CANAL

Tolls.—Due to the great increase in intercoastal traffic, already noted, small wonder is it that the Panama Canal is becoming all the time a more prosperous undertaking. Again, notwithstanding that American ships lead all others in number and tonnage, there is abundant evidence that its popularity is increasing among foreign nations, as a business necessity of course. The question of tolls is meantime a burning one as between the Canal authorities and American steamship owners, the former recommending a rate of $1.00 per ton Panama Canal measurement on loaded vessels and 60 cents per ton on vessels in ballast passing through the Canal if a bill be passed establishing the Panama Canal system of measurement as the sole basis of tolls. The American steamship owners want a loaded rate of 80 cents per net ton for vessels, with a proportionate rate for vessels in ballast.

Finances.—Panama Canal revenues during the fiscal year 1925 decreased somewhat, but the net revenue from tolls and miscellaneous sources still stands at the impressive figure of $13,465,924.72, as compared with $16,307,948.50 in 1924 and $10,001,066.50 in 1923. American shipowners insist that it should suffice to pay the operating expenses of the Canal, an interest rate of 3 per cent. on the cost, and make adequate provision for amortization of the expense of shipping the greater part of which flies the American flag.

WATERWAY AND COASTWISE COMMERCE

By Harry Taylor

Major General, U. S. A., Chief of Engineers, War Department

Inland Waterways.—The following shows freight traffic for 1924 of waterways under improvement by the Federal Government, excluding short deep stretches of navigable rivers (like the lower Hudson and Delaware) which are really approaches to seaports:

TABLE OF IMPROVED WATERWAYS

Waterways	Short Tons	Value
Hudson River, middle stretch	9,721,553	$ 121,519,878
Hudson River, upper stretch	1,700,715	111,393,507
Delaware River, above Philadelphia	3,186,590	14,027,229
Chesapeake-Delaware Canal	683.206	42,086,886
Waterways, Norfolk to Sounds of North Carolina	293,893 497,393	4,850,973 17,427,267
St. Johns River, above Jacksonville	306,681	17,429,878
All others, Atlantic Coast	12,888,342	482,459,887
Mobile-Tombigbee-Warrior System	1,105,260	16,263.186
Southern Louisiana Waterways (excluding Mississippi River)	2,780,843	57,815,552
All others, Gulf Coast	2,929,417	57,005,433
San Joaquin River	727,499	38,185,313
Sacramento River	1,796,105	58,662,997
Columbia River, above the Willamette	1,146,106	25,109,905
All others, Pacific Coast	11,375,380	164,597,550
Mississippi River, below Vicksburg (excluding ocean commerce)	5,809,725	178,773,978
Mississippi River, Memphis-Vicksburg	1,666,440	119,408,180
" " Cairo-Memphis	1,153,021	80,055,571
" " St. Louis-Cairo	738,728	36,734,217
" " above St. Louis	769,139	14,265,553
Ohio River	10,866.683	128,356,018
Monongahela River	21,878,815	123,355,071
Allegheny River	4,339,511	11,896,245
Kanawha River	901,183	5,756,891
All others, Mississippi System	7,627,434	101,943,897
Detroit River (through commerce of the Great Lakes)	80,073,850	1,200,307,001
All others in U. S.	7,758,405	517,111,358
Total	194,721,917	$3,746,799,431
Total, corrected for duplications because of commerce moving over two or more waterways	173,200,000	$3,446,000,000

The figure for the Detroit River does not give the entire Great Lakes commerce, much of which (classified as foreign, coastwise or internal) did not pass through that channel. The total corrected Lakes commerce was 109,831,279, valued at $1,968,533,514.

A table on page 582 shows the total of corrected internal waterways commerce in recent years, including only that part of the Lakes commerce passing through the Detroit River.

The following is for internal waterways other than those under improvement by the Federal Government:

Waterways	Short Tons	Value
Cape Cod Canal *	922,062	$221,116,808
New York State Barge Canal	2,032,317	75,095,000
Lehigh and Delaware Division Canals, Pa.	297,612	1,559,511
Chicago Sanitary Drainage Canal	530,917	2,016,903
New Basin Canal, La.	402,643	2,006,426
All others of record	1,066,673	25,532,262
Total	5,252,224	$327,326,910

* It is questionable whether this should be classified as an inland waterway.

Panama Canal Trade.—Below are tables showing total traffic and intercoastal commerce through the Panama Canal in recent years:

TABLE OF COASTWISE COMMERCE
(Including Intercoastal)

Port	Tonnage, Both Ways	Value
Portland, Me.	1,779,283	$ 52,980,534
Boston	9,951,215	304,146,786
Providence	3,473,998	456,806,396
New York	29,573,952	2,328,035,883
Philadelphia	9,411,014	500,684,626
Baltimore	4,174,718	345,831,129
Norfolk-Newport News	12,867,091	419,317,302
All others, Atlantic Coast	22,056,383	1,595,720,072
New Orleans	2,520,435	118,364,603
Galveston, Houston, Texas City	8,286,719	776,430,626
The Sabine ports	9,836,277	244,727,778
All others, Gulf Coast	3,603,562	145,285,684
Los Angeles	17,972,065	517,486,659
San Francisco Bay and Harbor	16,172,115	867,889,166
Portland, Oregon	2,779,424	189,461,644
Tacoma	3,052,584	83,509,529
Seattle	6,414,577	341,139,159
All others, Pacific Coast	9,446,100	205,486,200
Hawaii, Porto Rico, and Alaska	3,736,912	445,243,464
Total	177,108,424	$9,938,547,240
Total, corrected for duplications of "receipts" and "shipments"	88,554,212	$4,969,273,620

INTERNAL WATERWAY COMMERCE

Year	Tonnage	Value
1920	125,400,000	$2,814,600,000
1921	116,300,000	2,443,500,000
1922	111,800,000	3,177,900,000
1923	153,700,000	2,960,200,000
1924	173,200,000	3,446,000,000

COMMERCE THROUGH PANAMA CANAL
(Short Tons)

Fiscal Year	Intercoastal	Total
1921	1,372,388	11,599,204
1922	2,562,527	10,884,910
1923	8,068,553	19,567,875
1924	13,527,378	26,994,710
1925	9,496,259	23,958,836

URBAN AND INTERURBAN TRACTION

By Henry W. Blake

Senior Editor, Electrical Railway Journal

Patronage.—Since 1917, the electrical railways of the country have not shown the annual percentage increase in number of passengers carried that was usual in earlier years. From 1902 to 1907, the average annual increase was 11.2 per cent.; from 1907 to 1912, it was 5.7 per cent.; from 1912 to 1917, it was 3.7 per cent.; from 1917 to 1922, it was 2.4 per cent. Statistics published by the American Electrical Railway Association show that for 370 companies, from which figures had been obtained, consisting mostly of the larger companies, the revenue passengers decreased 1.18 per cent. in 1924 as compared with 1923. The figures include the companies in New York City, where there was an increase in passengers carried of about 3.55 per cent. If the figures for passengers carried in New York are deducted from the 1924 and 1923 figures, the decrease in 1924 would be 2.26 per cent. The falling off in traffic is due principally to the competition of the private automobile, and is most noticeable on electric railways in the smaller cities and on the interurban lines.

This rate of decrease will probably grow less or stop, because city streets are constantly becoming more crowded, and the measures which will have to be adopted to relieve traffic congestion will necessarily favor the type of vehicle which utilizes the street surface area more efficiently per passenger carried than any other. This is the electric car. Many cities have already passed stringent nonparking ordinances covering the downtown business streets, thus relieving the interruptions to street rail traffic.

Bus Operation by Electric Railways.—During 1925, electric railway companies have greatly increased the number of buses operated by them. At the beginning of the year the number of buses operated by electric railway companies in the United States and Canada was approximately 2,462, about twice the number operated the year previous. Statistics compiled by the American Electric Railway Association show that in September, 1925, 251 electric railway companies in the United States and Canada were operating 4,452 buses over 12,060 miles of route. Of these 115 were giving city or suburban service, 48 were rendering purely interurban service and 39 were giving combined city or suburban and interurban service. Information was not available on the remaining 49 companies.

The local electric railway is the logical operator of the bus lines and possibly even of the taxicab service in the general territory served by it. One reason is that it already has an organization familiar with the transportation needs in the community. Furthermore, it can avoid duplication of bus and trolley routes, and thereby give more economical and efficient service. The bus service given by electric railway companies is of many types, varying from service similar to that given by the trolley cars to a de luxe city express service as in Kansas City, where fares up to 25 cents are charged for a city run. Some railway companies are also conducting bus tours of one-day or longer duration, for example, in Milwaukee and Baltimore.

At the convention of the American Electric Railway Accountants Association in October, 1925, a standard classification of bus accounts was adopted, fulfilling a need which had been felt for several years. This classification will give all those interested in keeping bus costs a basis for securing comparable bus cost data.

Early in the year the United States Supreme Court held that the degree of regulation which state public service commissions can exercise over interstate bus lines is very limited. Previously, the Interstate Commerce Commission had declined to assume the regulation of these lines, on the ground that it was without authority to do so. As a result, unregulated interstate buses have devoloped in large numbers, competing with steam and electric railway common carriers which have long been under governmental control. It is probable that legislation bearing on this point will be introduced at the coming session of Congress.

Types of Cars.—The expansion of bus service by electric railway companies has been one of the main developments of the year in local transit matters. Another has been advances in car design. Up to the development of the one-man safety car, ten years ago, there had been little change for many years in the design of car bodies. The early one-man cars disclosed the possibilities of light-weight construction and saving in car personnel; and improvements have followed fast. A tabulation made early in 1925 of cars purchased in 1924 shows that the most popular design for city lines was the one-man two-man car, which represented over 60 per cent. of all passenger cars bought, except those for subway and elevated lines and other train service. For such lines the articulated type is growing in popularity although as yet it is hardly more than in the experimental stage.

During 1925 the Brooklyn-Manhattan Transit Corporation added four triplex articulated cars to its rolling stock for rapid transit service. Each so-called "car" consists of three car bodies, which are mounted on four trucks. The overall length of each train unit is 137 feet. Articulated cars with two or three car bodies are also being tried out on a number of surface lines. The Milwaukee Electric Railway & Light Company was a pioneer in this kind of cars, using two bodies on three trucks, and in January, 1925, was rebuilding 384 bodies to form 192 duplex articulated units. Articulated cars for surface lines have also been used during the year in Detroit, Baltimore, Brooklyn and Chicago. Among the advantages claimed for this type of construction are reduction in weight, noise, first cost and operating cost, and greater comfort and convenience to passengers.

Another important development of the year in car design was the competition conducted by the Grand Rapids Railway for "light-weight noiseless" cars, by securing the construction from three car-builders of one car each, in which these two features, with comfort to passengers, received primary consideration. The cars furnished will undoubtedly leave an impress on car design of the future.

Standardization. — Present sentiment seems to be that it would be impracticable, or inadvisable even if practicable, to develop a so-called standard car, suitable for all lines, but that most of the economies possible in manufacturing from such a standard can be secured through the standardization of certain basic car dimensions. This is the direction on which the committee on unification of car design of the American Electric Railway Engineering Association has been working. Thus, it is aiming to establish for city cars a standard depth of side girder plates, standard spacing of post centers, standard sizes of glass, etc. Such standards would enable builders to fabricate most of the parts of car bodies on a quantity production basis.

Substations.—Outside of car design, the principal engineering development during the year has been an increase in the number of automatic substations. Some of these have been installed as substitutes for manually operated substations and some as additional stations to reduce line loss.

Fares.—There has only been a slight increase in the average fare on city lines during 1925. The Richey index for January, 1925, gave the average as 7.24 cents, whereas the figure for November, 1925, was 7.30 cents. This average is weighted in accordance with the population of the various cities in which the lines operate, and includes all of the cities in the country of 50,000 population or more, except New York City. While the uniform fare with free transfer remains the one most generally employed in urban service, there has been a tendency on some lines toward lower fares for the very short distance rider and the very frequent rider. Conspicuous examples of the former practice include Boston, where the local rider in the suburbs pays 6 cents, while if he uses the rapid transit lines, he pays 10 cents; the Public Service Company of New Jersey, which has 5-cent zones, generally coincident with city boundaries; and San Diego, which has an inner 5-cent zone and an outer 5-cent zone. In general, transfers are not given where only 5 cents is charged. The most conspicuous effort to give fare concessions to the frequent rider is through the unlimited-ride weekly or Sunday "pass." Conspicuous examples of companies using this plan are the Chicago Elevated Lines and the Pittsburgh Railways Company.

Franchises.—The most important new franchise adopted during the year was that in Cincinnati which went into effect Nov. 1, 1925. It is of the service-at-cost type, with a fare control fund having a lower limit of $200,000 and an upper limit of $600,000. The city retains the right of purchasing the property each year for the aggregate par value of the capital stock and reducible debt outstanding. Two important francise settlements were rejected by popular vote during the year, both on April 7. One was in Milwaukee, where the proposed franchise was on a service-at-cost basis, with participation of the city in the management of the affairs of the company in the metropolitan area. The other was in

Chicago, where a unified transportation system, to be owned by the city, and to include a subway, was under consideration.

Accident Reduction.—The large number of automobiles on the streets has greatly increased the problem of accident prevention. While accidents from boarding and alighting and causes other than in connection with automobiles have decreased as a rule, those in which automobiles are involved have in many places increased. In consequence, most companies now pay great attention to intensive campaigns both among their employees and with the public to promote the idea of safety. A number of companies now use one kind or another of bonus plan to encourage employees to make good safety records.

Interurban Railways.—The remarks just made about accident reduction apply equally to urban and interurban railways. The latter are also paying great attention to improved car design, especially in the way of lighter cars and more comfortable cars. Interurban roads are also paying more attention to developing freight, and the revenue from this source during 1925, it is estimated, will amount approximately to $65,000,000. The most important development in the interurban freight business in the recent past has been the establishment of through rates and joint transportation arrangements, not only between connecting electric lines but also with steam railroads and boat lines. One group of interurban roads in Michigan, Indiana and Ohio has a single tariff, naming through competitive rates between all stations served by them and covering approximately 5,000 miles of road. Progress along similar lines has been made by a group of electric railways operating in western Pennsylvania.

Statistics.—The last census report of electric railways was taken in 1922, but this report was not published until February, 1925. It showed the following statistics for urban and interurban roads during 1922: Number of companies, 1,200; miles of single track operated, 43,932; persons employed by operating companies, 300,523; passengers carried, 15,347,519,966; railway operating revenues, $925,477,485; railway operating expenses, $678,563,170; net revenue from railway operation, $246,914,378; gross income, $256,464,838; net income, $57,187,612; gross capitalization of operating and lessor companies, $5,446,794,547; net capitalization on account of electric railways (excluding investments in securities and non-operating property), $4,661,923,873. There were 88,707 revenue cars, of which 77,301 were passenger cars.

The table below gives statistics for 1923 and 1924, compiled by the American Electric Railway Association for 370 companies, which operate, however, about 75 per cent. of the total track and account for nearly 85 per cent. of the gross revenue of the industry:

COMBINED OPERATIONS OF 370 COMPANIES

	1924	1923	Per Cent. Increase or Decrease
Operating revenue	$786,530,422	$794,252,546	— 0.98
Operating expense	581,288,567	584,674,342	— 0.58
Net operating revenue	205,241.855	209,578,204	— 2.07
Operating ratio	73.90%	73.61%	+ 0.39
Miles of track	32,083.3	32,032.5	+ 0.15
Revenue passengers	10,890,887,334	10,906,853,081	— 0.15
Total passengers	13,483,075,342	13,642,898,110	— 1.18
Car-miles (rev.)	1,843,827,779	1,823,941,852	+ 1.09

AERONAUTICS

By Godfrey L. Cabot

President, National Aeronautic Association

Government Activities.—The United States Government has created five separate government agencies carrying on important Aeronautical work, as follows:

1. The United States Army Air Service.
2. The Navy Bureau of Aeronautics (in which is incorporated the Marine Corps activity).
3. The Air Mail Service of the Post Office Department.
4. National Advisory Committee for Aeronautics.
5. Department of Agriculture.

U. S. Army Air Service.—This Service is a separate combatant branch of the Army, consisting of 904 officers and 8,950 enlisted men, a total personnel including flying cadets, of 9,854 as of June 30, 1925.

Instruction.—There are seven schools, including a technical school, a primary and advanced flying school, a tactical school, a balloon and airship school, an engineering school and an inspectors' school. These schools are under the direct supervision of the Chief of the Air Service. A number of fields located in many places throughout the United States occupied by tactical units are under the immediate command of Corps Area Commanders of the U. S. Army.

Aid to Commerce.—In addition to its work as a part of the National Defense, the Army Air Service has been extremely active since the war in demonstrating the value of aeronautics as a peace-time agency. Officers and planes have been loaned to the Department of Agriculture. Much attention has been given to the technical development of aircraft which has its peace-time value in connection with commercial and civilian aviation.

A good example is the coöperation of the Air Service Engineering Division, located at McCook Field, Dayton, O., with the aircraft transportation and aircraft manufacturing industries. This Engineering Division has been largely responsible for the development of military aircraft and equipment, which is the best in the world in point of performance and has, at the same time, acted in the capacity of consulting engineer and research department for general aeronautical development.

In an effort to promote, popularize and stimulate commercial aeronautics, the Army Air Service has taken part in many contests and has brought to the United States a large number of world's records.

Mapping.—Another important activity, that of photographic mapping, has been successfully carried on by the Army Air Service, and has stimulated the birth and growth of a number of civilian organizations which now make a regular commercial enterprise of such work. Much of the apparatus now available for such use was first developed either by or under the supervision of the Army Air Service.

Agricultural Department.—Though of less immediate scope and importance than some other departments, it is fitting, next, briefly to sketch the air work of the Agricultural Department because this has been and is so largely dependent on the good will and zeal of the Army Air Service. The Army Air Service has loaned men and planes to the Agricultural Department for forest patrol and much good work has been done. It has been found, however, that there are so few airdromes, and other facilities that this work is unusually hazardous and chiefly valuable as an adjunct to other services, such as the use of lookout towers, etc.

Much has, however, been learned on the control of fires over large areas; and $50,000 has been appropriated this year for special work in particular localities such as patrol whenever the sky is hazy and the scope of vision of lookout towers inadequate.

Spraying.—Another very important use that has been developed by the Agricultural Department is the use of airplanes for distributing arsenate of calcium mixed with a large surplus of lime over the cotton fields of the South to exterminate the boll weevil, the army worm and cotton leaf caterpillar. It has been found that where cotton is cultivated over large areas, not only better, but, also, cheaper service can be obtained by distributing the poison from airplanes.

Through this work of the Agricultural Department, contracts have been made for five treatments of a very large area of southern cotton fields by a firm of aircraft manufacturers who have developed for this purpose a very efficient special machine carrying each 1,000 pounds of poison. When it is considered that there are probably over 20,000,000 acres of cotton fields in the South in such large areas as to make treatment from the air economical, and that it takes something like five treatments a year, it would seem that this industry has a truly immense future before it. The demand for this service apparently exceeds the supply so that new planes must be built to take care of the peach orchards which, also, seem to be more conveniently protected in this way than in any other from certain pests that destroy them.

Naval Aeronautics.—The Navy Bureau of Aeronautics differs from the Army Air Service in that it is an integral part of the fleet, the Navy having no separate combatant arms. Pilots, mechanics and aircraft units form the naval air organization afloat and are under the immediate command of the vessels or fleet to which they are attached. The National Aeronautic Association has suggested the desirability of giving more attention to combatant use of aircraft, organization of air attack and the development of bombing attack. The subject of Naval aeronautics is treated at length in the Division on Defense and Armament.

National Advisory Committee.—This is a body of twelve members appointed by the President, serving without compensation. Five are appointed from private life and the others come from the War and Navy Departments, the Weather Bureau, the Bureau of Standards and Smithsonian Institution. This Committee studies the problems of flight, aircraft construction, and gives advice to aircraft manufacturers and others therein interested. It has a well-equipped research laboratory located at Langley Field, Hampton, Va., one of the stations of the Army Air Service. The N. A. C. A. functions through an executive committee and standing technical committees in coordination with other Government air agencies and the public. The Committee investigates in its own laboratory the fundamental principles of aeronautics, and allocates work on particular technical problems among other Governmental and private institutions. It publishes the results of its own work and collects aeronautical data from other agencies throughout the world. Its reports are available, not only to Government departments, but to the public at large, through pamphlets which may be purchased for a nominal sum from the Public Printer.

Other Governmental Activities.—The work of the U. S. Bureau of Standards and the U. S. Weather Bureau have been of great value and assistance along aeronautical lines. Much aeronautical work has been done by the Bureau of Standards in their well-appointed laboratories at the request of the War and Navy Departments, the N. A. C. A. and of the National Aeronautic Association.

The Aeronautical Board is a joint Army and Navy board, organized to coördinate the activities of these military branches and avoid needless duplication. It acts as a clearing house of information, giving each the benefit of all that is known by the other and facilitating the cordial coöperation which has marked the history of these two Government departments. Outstanding instances of this coöperation are the World Flight, and the making of contracts for aircraft by one department, and the placing of the resultant aircraft at cost with the other, thereby securing a better price and cheaper production than would have been possible had they worked independently.

The Weather Bureau has furnished special reports and weather predictions for use of those who navigate the air, and arranged to have Aviation officers present at certain of its stations to receive daily and hourly reports of air conditions for the benefit of certain Governmental activities heretofore mentioned. Meteorological investigations which are of great importance to aerial navigation have been greatly assisted by the work of this Bureau.

The Forest Products Laboratory, located at Madison, Wis., has accomplished a great deal in the investigation of wood and wood products and their application to airplane manufacture. The results of these experiments are available, also, to the Government and the public at large.

Achievements.—Since the War, the United States has acquired most of the International aircraft records, but in two important matters we still lag lamentably behind.

First, England, France and other countries have enacted national legislation and signed an International Convention, providing for the national licensing of pilots and machines, after examination and inspection and careful regulation of traffic, and also providing for the International regulation of traffic. The necessity of uniform traffic rules is as obvious in the air as it is on the high sea, and the penalty of improper control is more swift and certain and terrible. There is no adequate reason and no possible excuse for the United States to fail to regulate the air traffic within its borders and to ratify the International Airways Convention which it signed on the 13th of October, 1919, making, however, such reservations as may be needful for our safety or welfare.

The second matter in which Europe is ahead of us is that of the commercial transportation of passengers and freight and here the European preponderance is wholly due to liberal Government subsidies.

World Flight.—This was the most spectacular event that took place last year in the field of Aeronautics. On March 17, 1924, four Douglas airplanes equipped with Liberty Engines and designated as the "Douglas World Cruisers," left Santa Monica, Cal., to circumnavigate the globe. The flagship of the expedition, the Seattle, was flown by Major F. L. Martin and was wrecked in a storm off the coast of Alaska. The command of the expedition then devolved on Lieutenant Lowell H. Smith, under whose direction the remaining cruisers circled the globe, returning to the United States on September 6, 1924. The third machine, the Boston I, was wrecked while crossing the Atlantic and replaced by the Boston II, which completed the trip. The members of the flight, together with their airplanes, were as follows:

The Seattle—Major Frederick L. Martin, Sgt. Alva L. Harvey.
The Chicago—Lieut. Lowell H. Smith, Lieut. Leslie P. Arnold.
The New Orleans—Lieut. Eric H. Nelson, Lieut. John Harding, Jr.
The Boston—Lieut. Leigh Wade, Sgt. Henry H. Ogden.

In making this great flight, the first successful attempt to fly around the world in an airplane, there was a total of 28,000 miles flown, during which the three airplanes used approximately 28,000 gallons of fuel and 2,500 gallons of oil. With the exception of ordinary minor repairs, the airplanes showed their adaptability to all weather conditions and climates by returning to this country in excellent condition. One of the airplanes is to be placed on exhibition for all time in the National Museum in Washington. The success of this tremendous undertaking did much for aviation in general and for the United States in particular. First, it showed that present-day airplanes are sufficiently sturdy and dependable to accomplish long journeys over hazardous routes, and, in addition, proved the resourcefulness and capability of the Army Air Service organization and its pilots. Several other countries have attempted flights around the world but as yet none has succeeded.

Another great value of this flight lies in the fact that from it much was learned about routes over hitherto unknown courses and through conditions the effect of which on aircraft had not been known. The information thus gained may be not only of military value but undoubtedly will find valuable reference in the future establishment of commercial airways.

Records.—The records for maximum airplane speed and maximum altitude, as well as others, have for the past few years been going back and forth from the United States to France with great regularity. A new record is set up in one or the other country only to be broken a few weeks or months later by some aviator in the other. At the present time the records for maximum altitude and speed are held by the French.

Technical Development — Supercharger.—One of the most important technical developments in aeronautics in recent years is the supercharger, which, it is believed, has reached a more advanced stage in this country than in any other. This device is designed to make possible approximately the same performance of an airplane engine at high altitudes as at sea level. Since the war the Air Service Engineering Division at McCook Field, Dayton, O., has been working continuously on the project until now a supercharger has been evolved which is capable of continuous operation under the most adverse conditions. The Army Air Service has made repeated tests of this device on all types of airplanes, from the pursuit to the bombardment, with equally gratifying results in each. The supercharger was undoubtedly responsible for the previous world altitude records which were made by Lieutenant Macready and those, immediately after the war, by Major R. W. Schröder.

Large bombing planes equipped with superchargers are now able to carry greater loads to altitudes before considered impractical and the pursuit airplane is maneuverable and has a service ceiling greatly in excess of that known at the close of the war.

The value of the supercharger for military use is obvious, and it may become even of greater importance in the commercial field. Aerial navigation from the standpoint of commerce has not yet reached any definite scheme of operation. It is held by many that long distance commercial aircraft will operate at very great altitudes in order to take advantage of prevailing winds, etc. Be that as it may, the supercharger will make possible the operation of engines installed in any craft at whatever altitude may be necessary for them to take greatest advantage of natural conditions.

Compass.—One of the important problems in the development of aerial navigation has been found in the work which has been done to produce proper navigating instruments. Much of the same information is necessary relative to the movement of an airplane through the air as is necessary in the navigation of a ship at sea. However, the conditions under which the two operate are different. Since the airplane is so much faster and is operating in two planes instead of one, ordinary means to keep track of its movements are inadequate. The usual compass, for example, is inadequate on an airplane, due to the effect of the metallic parts of the machine and the rapid changes of direction of the craft. To meet this need there has been developed by the Bureau of Standards an entirely new type of compass known as the "earth inductor compass." This operates on the principle of an armature rotating in the magnetic field of the earth. With any change in the position of rotation of this armature with respect to the direction of the earth's lines of force, there is a corresponding change in the voltage generated. If a sensitive galvanometer is so arranged as to read zero for any particular position of the armature relative to these lines of force, it will show different readings corresponding to the amount of change in position.

Apparatus.—Greatly improved types of inclinometers, air speed indicators, flight indicators, bomb sights, etc., are now available for airplane use. There has just been developed a completely new type of instrument board for airplanes. Whereas the instrument board in use at the end of the war mounted a large number of circular dials for the various instruments, such as ammeters, altimeters, tachometers, etc., each one separate from the other, the new system is to combine several of these different instruments reading onto a single vertical dial. This vertical dial is ordinarily about an inch wide by four inches high, with the moving indicators traveling vertically up and down the dial. The indicators are so arranged that one may register on one side of the dial on a scale separate from another within the same instrument.

In the accessibility of the modern airplane, we find evidence of the great amount of technical work which has been done toward simplifying and making airplane repairs easier in the field. The modern airplane is so arranged that the engine and other portions of the craft are easily accessible for the mechanic who has repairs to make and also the entire power plant may be removed from the plane and a new one substituted with a minimum of time and trouble. Airplanes have been built in which it is possible to remove the entire power plant by detaching the nose of the body of the fuselage which carries it from the airplane as a unit. In such cases, any controls which may have to be disconnected are so arranged that they may be easily reconnected to similar points in the control system of the power plant which is being substituted.

Fire Protection.—Fire hazard in aircraft has been lessened by arrangement of the parts of the airplane itself so as to prevent the spread of possible fires and by precautions to prevent their occurrence. Fireproof bulkheads are built into the engine compartments, making it difficult for the fire to spread backward to the pilot's cockpit.

In order to prevent fire after a crash much time has been directed to the development of fuel containers which would not rupture upon crashing or that would be leakproof.

Parachute.—The Army Air Service has developed a type of parachute which is exceedingly efficient and, in fact, so much so, that it has been adopted by at least two other governments as service equipment of their flying personnel. The parachute is made in several models, worn in different positions on the body. However, they are all similar in that they are attached to the pilot's body with a harness before he gets into the airplane.

Photography.—The development by the Army Air Service of photographic apparatus is important. In coöperation with Major Bagley of the Engineer Corps, the Eastman Kodak Company and the Fairchild Aerial Camera Corporation, aircraft cameras have been greatly improved.

In the demonstration of the usefulness of these new cameras, much has been learned about the mapping of large areas from the air, as well as the taking of aerial photographs for reconnaissance purposes.

Photographic and experimental work has been extended to the point where great rapidity is possible in making and developing the prints.

There are several companies in the country organized for the purpose of aerial photography and mapping.

Helium.—A very important work has been done in relation to lighter-than-air traffic in reducing the production cost of helium gas to below five cents per cubic foot.

Smoke Screens.—Within the past year, the Army Air Service, in coöperation with the Chemical Warfare Service, has demonstrated the possibility of laying very effective smoke screens from aircraft and both the Navy and the Army have laid down, in a minute, in public, smoke screens or curtains a mile long and reaching over a thousand feet in height. The usefulness of such a screen in wartime is obvious.

Comparison of Lighter and Heavier than Air Types.—The Army Air Service maintains only experimental and training activities with lighter-than-air craft. Small semirigid and non-rigid airships are used for training of personnel. Free balloons and those of observation type are also used for similar work. The airship and the airplane should never come into serious competition with each other as they can be used to greatest advantage in the accomplishment of entirely different missions. The airship will carry a much greater load and transport it over much greater distances without alighting than can the airplane. On the other hand, the airship is not nearly as fast as the airplane and requires more elaborate landing facilities at terminal points. It is probable, then, that in the future the airship will find its commercial use in taking care of the "long haul" business, leaving the short, fast-covered routes to the airplane.

Helium Gas.—In connection with the operation of airships and balloons the United States in one respect, occupies an enviable position. In this country only have been found sufficiently large deposits of helium gas. At the present time, the facilities for extracting helium gas in this country are insufficient for the present needs of the Army and Navy. These will probably be improved and helium will be made available for the use of commercial concerns operating in this country. The Bureau of Mines, which has been concerned in the development of helium, has also produced repurification plants, one of which is a mobile unit mounted on railway trucks.

Science of Aeronautics.—To facilitate the study of aeronautics along scientific lines, the Government maintains the laboratories of the National Advisory Committee and those of the Army, Navy and Bureau of Standards. Likewise each year a certain number of commissioned personnel from the Government air service are sent to various academic institutions throughout the country.

Federal Legislation on Aeronautics.—Each year for the past seven or eight years bills have been introduced in Congress, but never passed, designed to regulate and govern the operation of commercial aircraft, while more than a dozen states have actually passed acts controlling aerial vehicles. Some of the national bills have attempted to establish a separate department of aeronautics within the Government, with a cabinet officer at the head; others have aimed to place the control and regulation of this new means of transportation within a new bureau of some existing department and even in existing offices. None has yet been passed. Some years ago the Department of Commerce exercised control of seaplanes while operating from the water and during the war aerial navigation was controlled by presidential proclamation.

Federal statutes will become a reality, together with the organization for their enforcement, when sufficient pressure is brought to bear upon Congress.

In Europe, where commercial aeronautics is in full swing, frontiers are close together from the flyer's point of view. A flight of one to three hours takes one over the border and into some other country. The international air convention in Europe comes, doubtless, as a result of conditions.

THE MOTOR BUS

By Carl W. Stocks

Editor of "Bus Transportation"

Extent of Service.—Four billion passengers is the estimate carried during 1925 by motor bus. This fact gives some conception of the degree to which the bus has already entered the community life of the nation. At the beginning of the year the bus industry covered 202,090 miles of route. With the 250,412 miles of steam railroad tracks and the 43,933 miles of track operated by the electric railways, it can be readily seen what an important part the bus plays in present day transportation. Rapid as the growth may seem, the opportunities of the bus industry are just beginning to be revealed.

October 1, 1925, found approximately 65,000 busses operating in the United States. Of these, about 35,000 were run by 10,000 independent bus companies, 4,500 by 250 electric railways, 1,000 by 250 hotels, 20,000 by 15,000 schools, 1,500 by sightseeing companies, 2,900 for industrial use and 250 by railroad terminal companies. The division in function indicates that the greater part of the industry is giving either common carrier or school service.

Types of Service.—Broadly speaking, the services rendered by these common carriers can be divided into two groups, the inter-city and the city. In the first of these is included services connecting two or more distinct communities. City service, of course, includes lines operated within city limits and to contiguous suburban districts. Experience has already indicated that wherever highways have been built the inter-city bus line follows, rendering service even to communities and country districts which otherwise might be without public transportation.

Vehicles.—In this connection, it is not amiss to say a few words regarding the function of the different types of busses when compared on the basis of seating capacity and weight. Of course, public attention has been attracted mostly by the development of the larger, heavier and more spectacular types. Frequently, however, the smaller 12 to 21 passenger models, on account of their lower cost of operation and lower investment, can be used where the traffic would not support the larger and more expensive heavy duty type. Again, where roads have not yet been hard surfaced, the "light duty" or small type bus is, irrespective of traffic density, the only one that can be satisfactorily operated. Any complete bus system must, however, include a number of these lighter vehicles to round out properly economical operation.

Inter-City Traffic.—In various sections of the country the inter-city bus service has developed into a veritable network of crossing and inter-crossing lines. Among the states that can be mentioned as having unusually complete systems are California, Minnesota, Ohio, North Carolina, Washington, Utah and Indiana. Although the length of these inter-city lines varies considerably, they average about fifty miles.

City Traffic.—In the city also the bus renders valuable assistance in providing service to districts where other transportation systems do not operate. The more recently developed residential areas are a good example. The bus is also proving practical as the sole public transportation system in cities with populations of 25,000 or less. Among those that might be mentioned are Gloucester, Massachusetts; Newburgh, New York; Astoria, Oregon; Everett, Washington; Middletown, Ohio; and Portsmouth, New Hampshire. In the larger cities the double-deck bus is being used. New York, Chicago, Philadelphia, Detroit, Baltimore and St. Louis all have highly organized systems operating this equipment. These are characterized by their frequent and dependable service which emphasizes comfortable mass transportation based on the idea of a seat for every passenger.

The Bus and Electric Railways.—At least 249 electric railways or their bus subsidiaries were operating on October 1, 1925, 4,437 busses as a part of unified transportation systems. This evidence of interest among electric railways definitely indicates the end of the antagonism with which they first received the bus. Some of these routes act as feeders, others as extensions beyond the rail heads, while some are completely independent and developing their own traffic. The bus industry is the result of but eleven years' development. The forerunner of the modern bus was the privately owned and operated "jitney." This vehicle made its initial appearance on the Pacific Coast and the idea spread rapidly over the country. As the early jitney services were unregulated and run in a haphazard manner, there was no way of measuring their growth. Gradually the type of vehicle used in this service changed. First came the lengthened passenger car chassis on which a 12 or 14 passenger sedan type body was mounted for inter-city service, and then the use of the ¾ and 1-ton truck chassis, with a street car type body and longitudinal seats in strictly city service. Each of these newer types became popular because of increased carrying capacity and therefore higher earning power. During this period, however, the manufacturer paid little attention to the situation.

Organization of the Industry.—It was not until the latter part of 1921 that any attempt was made to develop and manufacture a modern bus. This same period also saw the first attempt made to estimate the number of vehicles in operation. This estimate was 20,000 vehicles. Gradually the yearly increase became larger until in 1925 the estimate was a total of 65,000 busses of all classes in operation.

In the latter part of 1922 the bus was more generally accepted as an important unit in the transportation world. Activities crystallized into definite proportions, consolidations of original operating companies were effected and progress was made towards modern and safer types of vehicles. At this time also the idea of establishing and maintaining regular schedules became more firmly a tenet of the industry and the need of terminals as traffic builders better realized. This and the aggressiveness of the bus manufacturers have made the place of the bus better understood.

The Future.—As to the future growth of bus transportation, several influences are at work which will lead directly to a better establishment of the industry as a common carrier. One is the development of organizations of bus owners. Another is the increasingly noticeable trend toward consolidations of bus companies. A third is a tendency toward regulation. The manufacturer also has a part to play. It is he who must realize that, as the industry becomes better established, the bus operators will demand improvements in vehicles, which will give lower operating costs and longer life, irrespective of weight, size and carrying capacity.

Bus transportation is indeed developing on a stable foundation and those connected with the industry can well be proud of its achievements and stirred by their thoughts as to its future possibilities.

RADIO COMMUNICATION

By J. H. Dellinger

Chief, Radio Laboratory, Department of Commerce

General Progress.—The development of radio broadcasting stimulated the growth and refinement of all the earlier uses of radio, such as ship and transoceanic communication, radio aids to navigation, radio picture transmission and remote control, and amateur radio message relaying. In 1925, improvements in the instrumental facilities for these services were noteworthy, as for example the very general replacement of spark by continuous-wave apparatus. Conspicuous progress continued during 1925 in commercial radio telegraphy in competition with the ocean cables, clinching America's position of dominance in transoceanic radio. Public radio service was inaugurated with various Central American countries (Nicaragua, Honduras, Costa Rica), and with Colombia, Poland, and Sweden, thus extending the considerable radio connections previously established with Europe and South America. The construction of high power stations for similar service by American capital was begun in China and the Philippines. America approaches independence of the cables for communication with nearly every important country in the world. Progress was made on the construction of the high-power station in England required for completion of the system of radio telephone service between England and the United States; the facilities on the American side had been completed, and one-way radio telephony to England of commercial standard had been demonstrated, in 1924.

Gratifying as were the advances in all the diverse applications of radio, the outstanding progress was in broadcasting. Greeted at first as a marvel and a scientific toy, radio broadcasting was seen to have great potential effects on general enlightenment, on home life, on political activity, on musical appreciation and even on social organization. In 1925 these effects had passed from the stage of a profound hope to that of incipient reality.

Rise of Broadcasting.—The first successful broadcasting on a commercial scale, accomplished in 1921, was followed by extraordinary expansion of the use of radio. By the end of 1925, probably one-half the people in the United States had access to the radio programs through receiving apparatus. The value of radio goods manufactured during the year approximated a half billion dollars. This wholly unprecedented rise of a new service and a new industry took place almost entirely through private initiative. It received some governmental guidance through the annual National Radio Conferences called by Secretary of Commerce Herbert Hoover.

Government Regulations. — Radio is regulated in the United States under the two laws of 1912, one of them being the Ship Radio Act requiring radio transmitting apparatus on every ship carrying fifty or more persons, and the other being the Act to Regulate Radio Communication. The latter law provides for the licensing of radio stations and operators, specifies the frequencies to be used by ship stations, provides for the secrecy of private messages, and prohibits fraudulent signals and wilful interference. The law is administered, regulations are formulated, and stations are inspected, by the Department of Commerce. This law contains little that is restrictive and permits an almost unhampered growth of broadcasting. While proposed new laws have been presented in every succeeding session of Congress, there has been no legislation on radio since 1912.

The radio broadcasting system of the United States can be characterized as one of extreme freedom. Up until late 1925, anyone was free to erect a broadcasting station. In operating the station, no force other than public opinion restricts the character of the material that may be broadcast. No license or regulation other than patent rights is imposed upon the sale, purchase, and use of receiving apparatus. This is in marked contrast to the system in most other countries, where a Government license is required for the operation of a receiving set. This freedom accounts in large measure for the remarkable growth of radio broadcasting in four years from an obscure experiment to a vital force in American life.

Development of Broadcast Programs.—The earliest broadcasting was of phonograph music. Then for a year or two, the fare was largely programs from the studios of the various stations of one aspiring soloist after another, plus a heterogeneous assortment of talks. Then came the extension of pick-up lines from the broadcasting stations to theaters, hotels, athletic fields, and every place where were found fine music or important events. This improvement in the grade of material secured by the broadcasting stations culminated in 1925 in the presentation to the public through the broadcasting stations of the best fruits of current public life, of religion, education, sports, and music. Studio programs included performances by the best concert artists. Concurrent improvements in the technical phases of radio transmitting and receiving delivered all of this, to favorably situated listeners, with practical perfection. It became common for a large fraction of the population to participate, at a distance, in the excitement of great athletic contests; and the power and majesty of the art of masters of music was brought to the firesides of millions.

Radio Problems.—Despite the general improvement of the actual programs, certain problems arose along with the inevitable commercialization of broadcasting. There was a great deal of discussion over the question of regulating the character of programs. The Government consistently refused to assume the obligation of censorship, and the result is that the stations are entirely free in their choice of material. The station managements are, in point of fact, very responsive to the public reaction to their programs. This makes for high quality in the character of material and in the type of stations doing the broadcasting. The stations of higher power, greater investment of capital, and the maintenance of higher standards of equipment and program, have naturally become the most popular. The high standard and clean character of radio broadcasting compares favorably indeed with the theater, press, and other avenues of appeal to the public.

Financial Support.—One of the serious problems of the early days of broadcasting has solved itself. This is the question as to who would pay for broadcasting. With no possibility of financing the new industry by any form of assessment on the ultimate consumers, and with the artists and specialists who performed before the microphone more inclined to ask than to give financial consideration, this problem loomed large when broadcasting began. In spite of it, there has been an increase rather than a decrease in competition for the privilege of running broadcasting stations. This raises the question: What is the motive actuating the station owners to undertake and continue such large investments, the operation of a first-class station costing not less than $100,000 a year. This can be discerned by examining the character of ownerships of the stations. Approximately one half of them, in 1925, were owned and operated by manufacturers of or dealers in radio sets and others who profit by the sale of radio material. The other half were owned by educational, religious, and Governmental institutions and various commercial and semi-commercial organizations, whose interest lies in influencing the public. By and large, both classes could be said to conduct their stations as one form or another of advertising.

Advertising Influence. — Advertising is more highly developed in the United States than in other countries, and it has been found that radio broadcasting is a very effective and profitable form of advertising.

The second class of broadcasters were becoming proportionately more important than the first. The second class began to be modified in one respect, that is, by the rental of broadcasting service to parties who desire to pay for the privilege of furnishing the programs. These interests profit through the advertising gained through the mention of their names in connnection with the program. The advertising motive thus began to support broadcasting, not directly through ownership but through use of the broadcasting stations. This practice, however, brought to the front a serious question whether the commercialization of radio would not impair its effectiveness. Listeners began to be uneasy over the too rude intrusion of soap, bonbons, and typewriters in the midst of otherwise beautiful programs.

Platform of Principles on Publicity.—The importance of the question was recognized in the adoption of the following resolutions by the Fourth National Radio Conference in November:

"WHEREAS the excellence and public service value of radio programs is increased by the support of those seeking appropriate publicity.

"AND WHEREAS the use of inappropriate publicity methods meets with the hearty disfavor of the listening public.

"AND WHEREAS this public disfavor is fatal to the purpose of those seeking publicity and good will, as well as detrimental to the interest of the broadcaster and all branches of the radio industry.

"RESOLVED that it is the sense of this conference that the best interests of the listening public, of the radio industry, and of the broadcaster are all served by that form of broadcasting which provides a meritorious program of entertainment and educational nature and which limits itself to the building of good will for the sponsor of the program whether he be the owner of the station or a subscriber utilizing its facilities.

"RESOLVED that the Conference deprecates the use of radio broadcasting for direct sales effort, and any form of special pleading for the broadcaster or his products; which forms are entirely appropriate when printed or through direct advertising mediums.

"Resolved that the Conference concurs in the suggestion of the Secretary of Commerce that the problems of radio publicity should be solved by the industry itself and not by Government compulsion or by legislation.

"And Resolved that the Conference urges upon all owners of radio broadcasting stations the importance of safeguarding their programs against the intrusion of that publicity which is objectionable to the listener and consequently detrimental to others in the industry, as well as to the reputation of the individual broadcasting station."

Use of Copyrighted Music.—Another aspect of commercialism in the radio programs which caused serious difficulty was the question of use of copyrighted music. The listening public sometimes became aware of this through the occasional announcement that a performance had to be interrupted because of a demand for exorbitant royalties from the holder of copyright on some musical selection. These demands seldom came from the composer or author himself. The situation was essentially a contest between the broadcasters and the Society of Composers, Authors, and Publishers, an organization which controlled the copyrights on a large proportion of the popular music. The battle was still in progress at the end of the year.

At the Fourth National Radio Conference it was agreed by all interests that the owners of copyrights were entitled to reasonable compensation for the use of their copyrights, and the representatives of the broadcasting interests indicated a complete willingness to pay a reasonable charge for copyrighted numbers used by them. It appeared, however, that the parties were not able to agree upon the terms and conditions of use of copyrights.

Platform of Principles on Musical Copyright.—The Conference Committee on Copyright Relations to Broadcasting reached the conclusion that no good purpose would be served by undertaking to make a recommendation upon these disputed matters. The Committee, however, considered the principles which should control in the solution of this problem, and its conclusions are embodied in the Resolutions presented to the Conference, a copy of which is shown below. Attention is directed to the fact that this Resolution is applicable in terms only to musical compositions. The Committee did not undertake either in its deliberations or its recommendations to deal with copyrights of literary or dramatic productions nor of press matter.

"Whereas, there can be no continuation of broadcasting unless musical compositions are made available to broadcasters upon a fair, equitable and permanent basis, and

"Whereas, an insistent demand from the public requires that music be made the principal part of broadcast entertainment, and

"Whereas, practically all of this music is held by copyright proprietors and is not available to broadcasters except on prohibitive and unstable terms, and

"Whereas, the broadcasters recognize the right of the copyright proprietors to compensation for the use of their compositions and are willing to pay a fair and equitable maximum fee for each broadcast rendition of each copyright musical number, and

"Whereas, broadcasters believe that copyright owners should have the sole, complete and entire right to withhold their property from all broadcasting if they so desire; but that if a copyrighted number is released by the owner thereof to one or more broadcasters, then such number shall become available to all broadcasters, and

"Whereas, the present conditions threaten the entire broadcasting structure and the continuation and permanence of broadcasting depends upon the solution of this problem, and

"Whereas, all attempted solutions through negotiation between the parties have proved unavailing; now therefore

"Be It Resolved, that it is the sense of this Conference that the only possible solution lies in the enactment of suitable legislation based upon the above principles, and it is the recommendation of this Conference to the Secretary of Commerce that such legislation be suggested to Congress."

Dilemma of Too Much Broadcasting.—The very success and popularity of broadcasting gives rise to its principal difficulty or problem, which came to a head in 1925. The difficulty arises fundamentally because of the interference of one radio wave with another. All the radio signals are conveyed along a single track, the ether, and very skilful dispatching is required to avoid collisions. Every conceivable interest wanted to broadcast, because radio was found to be an efficient vehicle of publicity. It would not have been so bad if everyone had wanted to start a newspaper, because the printing of one newspaper does not get in the way of the printing of another; but in radio only so many can operate at one time. This physical condition was not taken into account by many persons and groups who wanted to broadcast and who should have been at least as willing to hold back from erecting radio stations as from starting newspapers. Not everyone who has a message for the public starts a newspaper; he usually uses for his purpose the newspapers already existing.

Antagonistic Frequencies.—The basic reason that the number of broadcasting channels is limited is that the frequencies of broadcasting stations are spaced 10 kilocycles apart. It has been found in practice that this is the minimum separation which permits satisfactory reception without interference. Rules for still greater frequency separation at certain distances are also observed. There are 95 channels or frequencies available, 10 kilocycles apart, in the frequency range used for broadcasting. Since there were 578 stations in 1925, not every station could have an exclusive frequency but most of them had to share with one or more other stations. This multiple assignment of frequencies required that the stations alternate in the use of the frequencies, as for instance, by transmitting on alternate nights. This was generally recognized as undesirable. In spite of this, the erection of stations and the applications for broadcasting licenses continued unabated. By November, 1925, there were pending before the Department of Commerce 175 applications for licenses to operate new broadcasting stations. As all the channels for broadcasting were already completely filled, the Department could see no way of complying with these applications for licenses.

Secretary Hoover's Diagnosis.—This situation was made the chief theme of the Fourth National Radio Conference, already referred to, which was held November 9, 10, and 11 in Washington. The Conference was attended by about 500 representatives of the radio industry, broadcasters, manufacturers, listeners, the press, etc. The discussions at the Conference brought out clearly that broadcasting would be ruined unless a severe check were put on the increase of the number of stations. This problem was put by Secretary Hoover as follows in the speech with which he opened the Conference.

"It is a simple physical fact that we have no more channels. It is not possible to furnish them under the present state of technical development. It takes no argument to demonstrate that 89 wave lengths (and no more are available) cannot be made to serve innumerable stations, no matter how ingenious we may be in arranging time divisions and geographical separations. It is not a question of what we would like to do but what we must do.

"One alternative, which would only partly solve the problem, would be to increase the number of stations by further dividing the time of the present stations down to one or two days a week or one or two hours a day. From the listener's viewpoint, and that is the only one to be considered, he would get a much degenerated service if we were to do that. . . . A half dozen stations in any community, operating full time, will give as much service in quantity and a far better service in quality than eighteen, each on one-third time.

"As the art progresses the capital investment in a good station has risen to upwards of $150,000, and the cost of operation has risen to as much as $100,000 per annum, and frequently even more. The costs are in large part the same whether the station works one day in a week or seven. If we impose more division of time than at present we shall drive the best stations out of action and the public will be more poorly served. . . .

"It has been suggested that the remedy lies in widening the broadcasting band, thus permitting more channels and making it possible to provide for more stations. The vast majority of receiving sets in the country will not cover a wide band. Nor could we extend it without invading the field assigned to the amateurs, of whom there are thousands and to whose constant experimentation radio development is so greatly indebted."

Secretary Hoover on Freedom of the Air.—"All these things bring us face to face with the problem which we have all along dreaded—we must now decide the issue of whether we shall have more stations in conflicting localities until new discoveries in the art solve the problem.

"We hear a great deal about the freedom of the air. But there are two parties to freedom of the air, and to freedom of speech for that matter. There is the speech maker and the listener. Certainly in radio I believe in freedom for the listener. He has much less option upon what he can reject, for the other fellow is occupying his receiving set. The listener's only option is to abandon his right to use his receiver. . . .

"We do not get much freedom of speech if 50 people speak at the same place at the same time, nor is there any freedom in a right to come into my sitting room to make a speech whether I like it or not. . . . In any event we can surely agree that no one can raise a cry of deprivation of free speech if he is compelled to prove that there is something more than naked commercial selfishness in his purpose.

"The ether is a public medium, and its use must be for public benefit. The use of a radio channel is justified only if there is public benefit. The dominant element for consideration in the radio field is, and always will be, the great body of the listening public, millions in number, countrywide in distribution. . . .

"There have been few developments in industrial history to equal the speed and efficiency with which genius and capital have joined to meet radio needs. The great majority of station owners today recognize the burden of service and gladly assume it. Whatever other motive may exist for broadcasting, the pleasing of the listeners is always the primary purpose."

Conference Resolutions.—That the principles that the number of stations must be limited, and that the public interest must be the basis of granting a broadcasting license, were set forth in the following resolutions of the Conference:

"Resolved, that further division of time among stations is not in the interest of public service and that the Department of Commerce should decline to grant any more licenses until the present number of broadcasting stations shall have been substantially reduced.

"Resolved, that the band of frequencies now assigned to broadcasting is overcrowded, causing serious interference. Therefore the Committee recommends, in the interest of public service, that no new stations be licensed until, through discontinuance, the number of stations is reduced and until it shall be in the interest of public service to add new stations.

"Resolved, that public interest as represented by service to the listener shall be the basis for the broadcasting privilege."

The Department of Commerce began putting these principles into effect immediately after the Conference, deleting a number of stations and licensing no new ones.

The adoption of these principles will inevitably bring about a great increase of the practice of renting the time of broadcasting stations to parties who wish to furnish the programs in order to secure advertising thereby. And, as more and more interests conclude that they can secure the results they desire through rental of the services of existing high-class broadcasting stations rather than through station ownership, the desire to own stations will become less fervent.

Technical Advances in Broadcasting.—The interconnection of stations so as to provide for simultaneous broadcasting of the same program by several stations is one of the most important developments. It has made possible a wide extension in the knowledge of national events; it makes the talent of the great cities available to everyone. The interconnection of a chain of stations has become a matter of regular daily procedure. In a few cases there was nation-wide simultaneous broadcasting of national events by 20 to 30 stations. This interconnection was in general accomplished through the use of long-distance wire telephone lines. In a few stations it was accomplished through the use of radio rebroadcasting, the program being picked up by the reproducing station at a frequency either above or below the broadcasting frequencies, removed by a factor somewhat greater than 2 from the limit of the broadcast band.

The effort to make a single program simultaneously available to larger and larger audiences was also being furthered by the use of higher and higher power. About 30 stations increased their power within the year from approximately ½ to 5 kilowatts. Three stations increased to a power of 10 to 50 kilowatts. This extension of the scope of radio broadcasting foreshadowed the possibility of world-wide as well as nation-wide broadcasting. Besides extending the distance of reception, the use of greater power delivered the broadcast programs to every locality relatively freer from static and every other kind of either atmosphere or electrical interference.

Interference.—Steady progress continued against the two great classes of interference, natural and man-made. As to the natural interference, it has come to be recognized that there will always be a certain residuum of atmospheric disturbances which will necessarily limit the distance from any broadcasting station at which reliable and satisfactory reception will be possible. The various kinds of man-made interference, on the other hand, are curable and are of local character; more and more localities were freed from the various types of this pest, particularly through the efforts of the electric power companies in following up complaints and tracing down defective electrical apparatus.

Nowhere has the interference problem been more acute than in radio broadcasting. When broadcasting began, it was all done on a single frequency or wave length. The resulting interference soon made this impossible, and the service has evolved until at present broadcasting has exclusive use of the frequency band from 550 to 1500 kilocycles per second (545 to 200 meters). The small separation of 10 kilocycles between broadcasting station frequencies requires that the frequencies be maintained with very great constancy. This requirement has been satisfactorily kept in view by the Government and by the transmitting stations themselves. Whistling interference produced by the heterodyne action between two station frequencies, while common two years ago, is now comparatively rare. Coincident with this advance there has been improvement in the ability of receiving apparatus to receive a desired station and exclude others. Many listeners continued as greatly interested in receiving from distant stations as from nearby ones; and this gave a market to very selective receiving sets.

Substantial improvement has been made also in radio receiving apparatus in the ability to deliver sound of high quality. Electron tubes of greater power and less distortion, together with improvements in loud speakers, transformers, and general design, permitted the production of receiving sets which gave substantially perfect quality, with volume as great as it had been in the original performance.

Fading.—Scientific and engineering laboratories devoted a great deal of study to fading, or the irregular fluctuation of received signal strength which is noticed when listening to programs from distances of 50 miles or more. While much was learned of the facts, this limitation on radio was not conquered. The only answer at the present time is that perfection can not be experienced in reception at such distances, and so the effective service area of a station is limited to a small area around it. In order to extend this service area, in European countries some of the broadcasting is done on lower frequencies (longer waves), since they do not fade so much. In England, for instance, a 30-kilowatt station in the center of the country, on a frequency of 190-kilocycles (1600 meters) was built to deliver programs to owners of crystal detector receiving sets over most of England. The use of multiple antennas was tried in America, and this and other expedients to reduce fading continue under investigation. Some noteworthy contributions were made during the year to the explanation of the vagaries of radio wave transmission.

Spectrum of Radio Frequencies.—The basic means of controlling traffic in the ether, so as to enable the several kinds of radio service to proceed simultaneously without destructive interference, is the allocation of certain regions or bands of the frequency spectrum to those services. This allocation has undergone a certain evolution in practice and in the decisions of the National Radio Conferences. In the 1925 Conference consideration was given to extending the band devoted to broadcasting. It was contended that this would permit the relief to some degree of the condition of overcrowding. Nevertheless, "no additional channels were found available for broadcasting except by sacrifice of the major wave band used by the amateurs; and careful analysis showed that even if this entire band were to be transferred to broadcasting the contribution toward the reduction of interference would be relatively slight. Furthermore, any such change in broadcasting channels would inevitably render at least partially obsolete the millions of broadcasting receiving sets now in use. No benefit proportionate to the certain damage could be found, and consequently the broadcasting wave band was not changed."

The absolute preëmption of the frequency band from 550 to 1500 kilocycles by broadcasting made it necessary that ship radio communication relinquish the use of certain frequencies formerly used in this band. As a result ship traffic was removed to frequencies between 120 and 190 and between 285 and 500 kilocycles. The allocation of frequencies, as made by the Fourth National Radio Conference, is given in the following table. Frequencies below 95 kilocycles are used for point-to-point land and transoceanic radio communication.

TABLE OF ALLOCATION OF FREQUENCIES

kc	m	Type of Transmission	Service	Remarks
95-120	3,156-2,499	CW and ICW	Government only.	
120-153	2,499-1960	CW and ICW	Marine and aircraft only.	
125	2,399	CW	Government.	Non-exclusive.
153-165	1,960-1,817	CW and ICW	Point to point, marine and aircraft only.	
155	1,934	CW and ICW	Government.	Non-exclusive.
165-190	1,817-1,578	CW and ICW	Point to point and marine only.	
175	1,713	CW and ICW	Government.	Non-exclusive (ice patrol, broadcast, etc.).
190-230	1,578-1,304	CW and ICW	Government only.	
213-235	1,304-1.276	CW and ICW	University and college, experimental only.	
235-285	1,276-1,052	Phone	Marine only.	

TABLE OF ALLOCATION OF FREQUENCIES (*continued*)

kc	m	Type of Transmission	Service	Remarks
245	1,224	CW and ICW	Government.	Non-exclusive.
275	1,090	CW and ICW	Government.	Non-exclusive.
285-500	1,052-600	....	Marine, coastal, and government only.	
300	1,000	CW and ICW	Beacons only.	
315	952	CW and ICW	Government only.	
343	874	CW and ICW	Marine only.	
375	800	CW and ICW	Compass only.	
410	731	CW, ICW, spark	Marine only.	
425	706	CW, ICW, spark	Marine only.	
445	674	CW and ICW	Government.	Non-exclusive.
454	660	CW, ICW, spark	Marine only.	
500	600	CW, ICW, spark, phone	Calling and distress, and messages relating thereto, only.	
500-550	600-545	CW, ICW, phone	Aircraft and fixed safety of life sta.	Non-exclusive.
550-1,500	545-200	Phone	Broadcasting only.	
1,500-2,000	200-150	CW, ICW, phone	Amateur only.	
2,000-2,250	150-133	....	Point to point.	Non-exclusive.
2,250-2,300	133-130	....	Aircraft only.	
2,300-2,750	130-109	....	Mobile and government mobile only.	
2,750-2,850	109-105	....	Relay broadcasting only.	
2,850-3,500	105-85.7	....	Public toll service, government mobile, and point to point communications by electric power supply utilities and point to point and multiple address message service by press organizations, only.	
3,500-4,000	85.7-75.0	....	Amateur, army mobile, naval aircraft and naval vessels working aircraft, only.	
4,000-4,525	75.0-66.3	....	Public toll service, mobile, government point to point, and point to point public utilities.	Non-exclusive.
4,525-5,000	66.3-60.0	....	Relay broadcasting only.	
5,000-5,500	60.0-54.5	....	Public toll service only.	
5,500-5,700	54.5-52.6	....	Relay broadcasting only.	
5,700-7,000	52.6-42.8	....	Point to point only.	
7,000-8,000	42.8-37.5	....	Amateur and army mobile only.	
8,000-9,050	37.5-33.1	....	Public toll service, mobile, government point to point, and point to point public utilities.	Non-exclusive.
9,050-10,000	33.1-30.0	....	Relay broadcasting only.	
10,000-11,000	30.0-27.3	....	Public toll service only.	
11,000-11,400	27.3-26.3	....	Relay broadcasting only.	
11,400-14,000	26.3-21.4	....	Public service, mobile and government point to point.	Non-exclusive.
14,000-16,000	21.4-18.7	....	Amateur only.	
16,000-18,100	18.7-16.6	....	Public toll service, mobile and government point to point.	Non-exclusive.
18,100-56,000	16.6-5.35	....	Experimental.	
56,000-64,000	5.35-4.69	....	Amateur.	
64,000-400,000	4.69-0.7496	....	Experimental.	
400,000-401,000	0.7496-0.7477	....	Amateur.	

Advances in Radio Engineering.—A conspicuous recent development in radio is the conquest of the new domain of very high frequencies (short waves). Even the existence of the vast range of frequencies above 2,000 kilocycles (below 150 meters) was hardly suspected, and certainly was generally forgotten, until 1924. One curious reason for the subordination of this range of frequencies has been the erroneous use of wave length in meters as an expression of radio frequencies. Radio engineering actually deals with currents which have a certain frequency. The wave length of the wave as it travels along in space can be calculated from the frequency, but it is a derived and an artificial concept. Frequencies up to 20,000 kilocycles came into extensive use in 1925. Actual radio services were conducted in this region by transoceanic communication companies, military services, broadcasters, amateurs; in short, every important radio interest began operations between 2,000 and 20,000 kilocycles. The applications to broadcasting were largely limited to the relaying of radio programs from one station to others which in turn broadcast at their normal frequencies. Even higher frequencies were used in experiments, but there is every likelihood that in the development of frequencies above 20,000 kilocycles directive transmission will predominate and the problems will be of a distinctly different character. Through the high frequencies a solution of a problem which had been regarded as insoluble, that of finding more communication channels, was reached. As shown in the frequency allocation table above, frequency bands approximately 10% wide in the frequencies above 2000 kilocycles were assigned to the different services, land point-to-point, aircraft, ship, relay broodcasting, public toll service, amateur, and Government. An important principle was followed in the assignment, viz., each service was protected from possible harmonic interference from stations of other services by placing the several frequency bands of any given service on its own harmonics.

One of the principal means of overcoming interference between the transmissions from simultaneously operating radio stations is the increase of selectivity or narrowing of the band of frequency which each station uses. Progress in this direction was made in all the various types of transmissions, as for example, through the use of filtering devices for radio telephony and coupled circuits in arc and spark apparatus. The principal advance, however, was the increasing adoption of continuous-wave transmission for radio telegraphy. There was also the advent of strictly constant frequency systems. A striking means of accomplishing this was furnished by the piezo oscillator. A new radio communication system of the utmost selectivity and precision was made available by this new device, and services which require the operation of a large number of transmitting stations spaced as closely together as possible in frequency and taking full advantage of CW transmission found this a great improvement. The piezo oscillator uses a plate of quartz vibrating at a radio frequency and simultaneously generating a current; it serves as a remarkably constant standard of frequency.

Improvement in Engineering.—The year in radio was characterized not so much by the invention of devices and methods as the perfection of them. Broadly speaking, radio engineering took definite form and became the tool by which progress in radio is being and will be wrought. There was substantial progress all along the line of radio engineering. Thus, in the development of new and improved radio communication methods or systems, there was great extension of the available frequency range, marked improvements in directive radio transmission, advances in the perfection of selective radio systems, and engineering development of line-radio or carrier-current communication. Among radio devices and applications of radio there was outstanding progress on radio beacons, on the use of radio for aircraft navigation, on direction finders, on radio picture transmission, and the achievement of radio motion pictures in very elementary form. In the field of research and study of the problems of radio, there was important progress in radio measurements, in standardization of apparatus, in the study and mitigation of the vagaries of wave propagation and atmospheric disturbances, and in the wide reaches of the interference problem. Increase of knowledge and of practical applications characterized all phases of radio.

EXPRESS BUSINESS

By H. L. Caverly

Professor at the University of Michigan

American Railway Express Company.—The express business of the United States is not conducted directly by the railroads, as it is in most foreign countries, but has always been handled through the medium of separately organized express corporations. Since July, 1918, the business has been predominantly in the hands of the American Railway Express Company, organized at the request of the then Director-General of Railroads to take over the business of the four leading companies. A permanent consolidation was approved in December, 1920, by the Interstate Commerce Commission, and the remaining lesser companies included. The American Company executed standard contracts with the railways for the carriage of express in September, 1920, under which the payment for express privileges is so adjusted as to assure the company, in effect, a return of 6% on its investment and a limited participation in profits above this amount. During the first half of the year 1925 the company was operating over an average of 258,236 miles of transportation lines, chiefly of railway carriers.

Transactions.—According to official figures of the Interstate Commerce Commission the aggregate gross receipts from operation during 1924 were $290,637,167, as compared with $313,179,966 for 1923, a decrease of about 7 per cent. Payment for the express privilege likewise decreased to $139,281,416 from the figure of the preceding year, $155,736,205, leaving a total operating revenue of $150,639,783 in 1924, in comparison with $157,443,761 in 1923. Operating expenses of the company during the two periods were: $147,446,609 in 1924; $154,446,244 in 1923.

As a net result the operating income of the company (net operating revenue adjusted for express taxes and uncollectible items) increased during this period—from $883,871 in 1923 to $1,045,468. The net income of the company, including in addition to the above, receipts from other than express services, was $2,503,726 in 1924, as compared with $2,685,161 in 1923.

Preliminary returns for the first six months of the year 1925 indicate a further slight falling off in revenues. Gross receipts for the six months ending June 30, 1925, were $140,906,735 as compared with $143,183,710 for the corresponding period in 1924. The net income for the same period in 1925 was $1,030,072, a decline from $1,138,680 in the first half of 1924. (A more complete exhibit of the financial operations of the company will be found in the statistical section at the end of this division.)

Southeastern Express Co.—In addition to the American Railway Express company, the Southeastern Express company was organized in 1921. This company operates over 10,000 miles of line of the Southern Railway and the Mobile and Ohio, its organization arising out of a disagreement between these roads and the American company. The gross business of the Southeastern company in 1924 was $8,039,397. Operating expenses amounted to $4,214,665. The balance was divided between the carriers and the company, the latter receiving, under its contract, a guaranteed dividend of $70,000 or 7 per cent. on its capitalization.

Rates.—On March 1, 1925, a new schedule of express rates went into effect. The American Express Company had petitioned for increased rates in 1922 and a comprehensive investigation of the express rate structure was undertaken by the Interstate Commerce Commission. The result, in general, was an order, issued in May, 1924, raising the level of rates in Zone 1 (the New England states and New York-Chicago trunk-line territory) and lowering rates in the remainder of the country, together with a readjustment of the rate zone boundaries. The intention of the Commission was to readjust rates more in accord with transportation costs, rather than to alter the general level. Application of the new schedule was delayed by litigation until this year.

TELEGRAPHS AND TELEPHONES

By Harcourt L. Caverly

Professor at the University of Michigan

TELEGRAPHS

Transactions.—The only complete data for the telegraph industry in the United States are those reported by the U. S. Census Bureau at intervals of five years, the latest figures being for the year 1922. In that year 19 land telegraph systems were in operation in the United States, maintaining 27,253 telegraph offices, as compared with 21 systems and 28,865 offices in 1917. The decreases indicate gradual unification of the industry as the volume of business is increasing steadily. The magnitude and growth of the industry are shown by the number of messages handled: 185,841,267 in 1922, as compared with 155,263,206 in 1917. The total investment of the industry in plant and equipment increased during the period from $163,487,637 to $254,029,933; the number of employees engaged from 49,608 to 64,902; and the wages paid from $37,879,560 to $71,491,743. The total gross revenue of the several systems in 1922 was $130,538,660; operating expenses amounted (after deduction of interest and to $102,010,773; and net income taxes) was $15,674,759. The corresponding figures for 1917 were: Gross revenue $92,954,370; Expenses $66,959,295; and Net Income $12,125,400.

Western Union.—While data after 1922 are not available for the industry as a whole, the financial operations of the Western Union Telegraph Company, which largely controls the business in this country, may be cited. The gross operating revenue of the company in 1924 was $112,861,555, operating expenses including taxes $99,581,556, and net operating revenue $13,279,999. The net income of the company (including non-operating revenue and deducting fixed charges) was slightly greater,—$13,336,682. The property investment of the company was $231,514,005. Preliminary figures for the year 1925 indicate a substantial increase in business. For the nine months ending September 30 gross revenue amounted to $94,141,130 and net income to $11,545,490; as compared with $84,861,418 and $9,511,355 respectively for the corresponding period in 1924.

Mackay Companies.—The chief competitor of the Western Union Telegraph Company is the Mackay Companies, a voluntary association of telegraph companies, which controls the Commercial Telegraph Cable Company and through it the Postal Telegraph system. The statements of the Mackay Companies show income from investments in telegraph companies of $4,787,286 in 1924, operating expenses of $173,955, and a net income of $4,613,331, the bulk of which was paid out in dividends. The policy of the association is to permit the accumulation of profits in the treasuries of its subsidiaries, except for an amount sufficient to meet its own dividend requirements.

Cables.—The telegraph industry is exhibiting at the present time much interest in the technical development of transoceanic cables. The plant investment of American companies in cables in 1922 was $72,631,927, representing 52,430 nautical miles of cable (U. S. Census Bureau). In

1924 the Western Union Company completed a "high speed" cable from New York to the Azores, capable of transmitting over 1,500 letters a minute. The company announced in 1925 that a similar cable across the North Atlantic to England was under construction, to be completed in 1926.

TELEPHONES

Business.—As in the case of the telegraph industry, the latest complete figures for the telephone business of the United States are those reported by the U. S. Census Bureau for 1922, with comparative figures for 1917. In 1922 there were 1,323 telephone systems in the United States reporting annual incomes of $10,000 or over. This compares with $2,200 in 1917 and indicates a policy of steady unification. The number of telephones in use in the two years increased from $9,953,710 in 1917 to $12,295,234 in 1922, a growth of about 19 per cent., and the estimated number of messages has reached tremendous heights, 19.8 billion in the former year, 21.9 billion in the latter. The industry employed, in 1922, 290,333 persons with a wage expenditure of $341,537,822, in comparison with 244,490 employees in 1917 and wages of $169,655,066. During the same period the investment of the industry in plant and equipment grew from $1,435,912,142 to $2,129,773,760.

The total gross revenues of the companies were $656,823,908 in 1922, as compared with $372,501,800 in 1917, an increase of about 76 per cent., which, of course, reflects the general increase in telephone rates as well as increasing business. Operating expenses (including fixed charges and taxes) underwent a similar increase from $313,103,060 in 1917 to $560,159,965 in 1922. The net income of the business increased from $59,398,740 to $96,663,943.

Bell Companies.—Figures later than 1922 are not available for the industry as a whole, but the consolidated statements of the Bell Telephone companies (subsidiaries of the American Telephone and Telegraph Company) are indicative of the development of the business. The gross earnings of the Bell companies for 1924 (excluding duplications) were $677,902,813, as compared with $623,110,988 in 1923 and $564,028,691 in 1922. The net income after deduction of fixed charges was $107,245,548 in 1924, as compared with $99,624,472 and $86,622,752 in 1923 and 1922 respectively. These figures reflect the steady expansion of the industry. Better indices of growth are found perhaps in the increase from 1922 to 1924 in number of employees, from 243,053 to 279,659, in number of telephone stations from 14,050,565 to 15,906,550, and in mileage of telephone line from 30,616,522 to 39,893,619.

American Telephone and Telegraph Co.—Preliminary statements of this controlling corporation for 1925 indicate an even more rapid growth of business this year. The total earnings of the company for the first nine months of the year were $132,271,232, as compared with $111,505,361 for the corresponding period in 1924. During the first half of the year the company made a net addition to telephone plant in the United States of $125,000,000. The completion of a through telephone cable from New York to Chicago, 861 miles in length and said to be the longest yet constructed, was a notable technical development of the year. (Further data for the telegraph and telephone industries may be found in the statistical section at the end of this division.)

AUTOMOBILE TRAFFIC AND REGULATION

By Harcourt L. Caverly
Professor at the University of Michigan

Progress.—The growing importance of the motor vehicle as a means of transport and the problem of its proper adjustment to older transportation agencies have but recently been clearly recognized. An index of the significance and rapid growth of highway transportation in general may be found in the data of automobile production and registration. According to figures of the U. S. Census Bureau, 3,638,388 automobiles were manufactured in the United States and Canada in 1924, as compared with 4,093,939 in 1923 and 2,638,562 in 1922. This was a decline of 11 per cent. from 1923 production, but an increase of 38 per cent. over 1922. The total production for 1924 included 3,263,307 passenger cars and 376,081 trucks. Total registrations of motor vehicles in the United States in 1924 amounted to 17,591,981, as compared with 15,092,177 in 1923, 12,238,375 in 1922, and 1,711,339 in 1914. The number of vehicles registered has increased approximately ten times in ten years. On the basis of advance estimates of a production of about 4,100,000 in 1925, total registrations for this year should be well over 20,000,000. In all about four-fifths of the world's motor cars are in the United States.

Competition.—It is generally conceded that the larger part of automobile travel represents a net addition to the volume of transportation, rather than a deduction from the business of other carriers. But the competitive phase of the situation is of increasing significance. Aside from private use the motor vehicle is establishing itself as a common carrier, competing with the electric railway through the development of motor-bus lines and with the railroad through the highway transport of freight. [See Section J. Motor Bus Service.] During 1925 a number of railway systems, including the Pennsylvania and New York Central, were experimenting with the use of the motor truck to replace local freight train service. Many of the larger terminals are developing motor truck service to replace interterminal switching or effect store-door delivery of freight. During the year the Boston and Maine Railroad announced that it contemplated abandonment of about 1,000 miles of branch line in favor of truck operation. The difficulties of adjusting the two agencies can be overstressed, however, since the truck competes, where at all, chiefly in the field of short-haul traffic, which is not relatively profitable for the railway. In October, 1925, the Bureau of Public Roads published an analysis of the causes of abandonment of railway mileage since 1920. Of the total abandoned mileage but 4.3 per cent. was attributed to motor competition, exhaustion of natural resources (57.8 per cent.), and competition of other railways (29.3 per cent.) being cited as the chief causes for the abandonment.

Regulation of Traffic.—Two problems of automotive regulation may be distinguished: the regulation of highway traffic and the regulation of motor vehicle common carriers. Regulation of the first type—licensing of drivers, restrictions on size, weight, and speed of vehicles, and establishment of traffic rules—has been marked by decided lack of uniformity. In December, 1924, the first National Conference on Street and Highway Safety, called by Secretary of Commerce Hoover, recommended a uniform code of highway traffic regulations and stressed the desirability of state rather than local control. A Joint Board of Interstate Highways was appointed by the Secretary of Agriculture in March, 1925, to designate interstate highways and provide for uniform markings. In November, 1925, a model ordinance to secure uniform municipal traffic regulation was approved by a state-wide conference in Michigan and its universal adoption by municipalities of the state urged. In various ways, therefore, the year has furthered the movement toward greater uniformity in traffic control.

Machinery of Regulation.—Regulation of the motor vehicle as a common carrier has been definitely undertaken in some 38 states, although there is much variance in the methods and extent of such regulation. In many of these states regulatory power is vested in a state board, usually the public utility commission. In a number of the states, however, local authorities are still permitted wide powers of control. The two typical restrictions placed on the business are the requirement of a "certificate of public convenience and necessity" precedent to operation, and the filing of an indemnity bond or the carrying of public liability insurance to guarantee financial responsibility.

Interstate Traffic.—In March, 1925, in three decisions the Supreme Court of the United States denied the right of the states to regulate interstate highway carriers, though no Federal regulation of such carriers has been instituted. In the absence of Federal legislation this portion of the business will remain without regulation. The National Association of Railroad and Utility Commissioners has taken up the question and in November, 1925, approved a bill to be presented at the present Congress. Their measure provides for federal regulation of interstate motor commerce with the use of the state commissions as the agencies of administration.

LEGISLATION AND COURT DECISIONS ON TRANSPORTATION

By Harcourt L. Caverly
Professor at the University of Michigan

Federal Legislation.—The only important enactment of the second session of the Sixty-eighth Congress bearing on transportation was the Hoch-Smith Resolution, a joint resolution approved January 30, 1925. This resolution directed the Interstate Commerce Commission to make a general investigation of the rate structures of common carriers, to determine to what extent existing rate structures may be unjust and discriminatory, and to adjust rates on agricultural products to promote freer movement of such products, to the greatest degree "compatable with maintenance of adequate transportation service." Hearings on the subject were begun by the Commission in September, 1925, in conjunction with hearings on a request of the Western roads for a 5 per cent. rate advance. These hearings are still in progress.

Court Decisions.—The following are among the more important decisions affecting transportation agencies made by the Supreme Court of the United States during the October Term, 1924.

(1) **Employee Representation Cases** (Federation No. 90 v. Penn. RR. Co., Brotherhood of Ry. and SS. Clerks, etc. v. Penn. RR. Co. U. S. Supreme Court. March 2, 1925).—These cases continue the dispute between the Pennsylvania Railroad and its employees regarding the selection of employee representatives for purposes of conference in respect to wages, etc. The road had sought unsuccessfully to enjoin the U. S. Railroad Labor Board from prescribing such methods of selection, authorizing unions to act as representatives, and publishing its findings. 261 U.S. 73 (1923). Although deciding in favor of the Board on these issues, the court held that decisions of the Board had no binding force against the parties. In the present cases the unions sought to enjoin the road from conduct of an alleged conspiracy to deprive them of rights, granted them under the Transportation Act and the decisions of the Labor Board, to act as representatives of the employees. The court in deciding against the unions reaffirmed the conclusion that the Labor Board has no power under the Transportation Act to enforce its decisions, that the Act created no rights in either employer or employee, and consequently that the road was within its legal rights in refusing to follow the order of the Board to deal with the unions, and was not subject to be enjoined.

(2) **Interstate Motor Transport Cases** (Mich. Public Utilities Comm. v. Duke. U. S. Supreme Court, January 12, 1925, Buck v. Kuykendall; Bush v. Maloy, U. S. Supreme Court, March 3, 1925.)—These decisions had the effect of restricting the authority of the states and their commissions in the regulation of motor common carriers to those engaged in intra-

state commerce. It was held that acts requiring a state permit or certificate precedent to the use of highways by motor common carriers were unconstitutional, if applied to carriers engaged exclusively in interstate commerce. Further, in the Michigan case, a statute imposing public utility obligations on a private carrier, operating under individual contracts, was held unconstitutional.

(3) **Delaware and Hudson Valuation Case** (U. S. Supreme Court, January 5, 1925.)—In this decision the Supreme Court upheld a tentative valuation of railroad property by the Interstate Commerce Commission to the extent of denying judicial interposition pending consideration by the Commission of the railroad's protests. The Commission must be given opportunity to take final action, since the tentative valuation is held to be an *ex parte* appraisement without probative effect.

(4) **Interurban Railway Cases** (U. S. Supreme Court, January 5, 1925.) —These cases upheld the power of the Interstate Commerce Commission to regulate interstate interurban electric railways and affirmed the Commission's power to order an increase in their intrastate rates, where such rates had been found to discriminate improperly against interstate commerce.

(5) **Statute of Limitation Decisions.**—In Danzer v. Gulf and Ship Island Railroad Co. (U. S. Supreme Court, June 8, 1925) the clause of the Transportation Act, which rules that the period of governmental operation of railroads shall not be counted in computing the two years allowed under the Interstate Commerce Act for filing damage claims, is not to be viewed as reviving claims which had lapsed prior to the passage of the Transportation Act. In Fullerton-Krueger Lumber Co. v. North. Pacific RR. Co. the same court applied a similar rule where the statute of limitations involved was contained in a state statute.

(6) **Abandonment of Lines** (Fort Smith Light and Traction Co. v. Bourland, U. S. Supreme Court, March 2, 1925.)—It was held in this case that the refusal of a city commission to permit abandonment of a street railway line was not unconstitutional deprivation of property, even where the system as a whole fails to earn a fair profit, if the company does not use its right to surrender its franchise and discontinue operation entirely.

(Western and Atlantic RR. Co. v. Georgia Public Service Comm., U. S. Supreme Court, April 13, 1925). The decision supported a rule of a state commission requiring a permit to abandon railway sidetracks, as a proper exercise of the state's police power and not a direct burden upon interstate commerce. The rule was held constitutional, even where operation of the particular unit of the property was not profitable.

(7) **Maintaining Rates** (Southern Utility Co. v. City of Palatka. U. S. Supreme Court, May 11, 1925.)—An agreement between a public utility and a city to maintain a specified schedule of rates remains a binding contract, even though the rates become unremunerative for the company.

STATISTICS OF TRANSPORTATION

By H. L. Caverly
Professor at the University of Michigan

A. American Railway Express Company, Financial

(Compiled from Reports of Am. Ry. Express Co.)

Calendar Year	1922	1923	1924
Charges for transportation	$291,349,315	$309,579,474	$287,281,416
Cost of express privilege	142,323,022	155,736,205	139,997,384
Revenue from transportation	$149,026,293	$153,843,269	$147,284,032
Other revenue	3,476,877	3,600,492	3,355,751
Total operating revenue	$152,503,170	$157,443,761	$150,639,783
Expenses, taxes, etc	151,395,591	156,609,890	149,594,315
Net operating income	$ 1,107,579	$ 833,871	$ 1,045,468
Other income	1,956,038	1,851,290	1,458,258
Total net income	$ 3,063,617	$ 2,685,161	$ 2,503,726
Surplus, after dividends	695,200	381,249	203,479

B. Telephone Systems in the U. S.

(Including systems reporting $10,000 or more annual receipts.)

(Compiled from Reports of Bureau of the Census.)

Year	1917	1922
Number of systems	2,200	1,323
Number of public exchanges	12,294	10,666
Number of private branch exchanges	80,914	102,622
Miles of pole line	780,200	694,567
Miles of wire	27,298,026	35,502,983
Number of telephones	9,953,710	12,295,234
Estimated number of messages	19,809,061,085	21,901,387,070
Gross revenues	$ 372,501,800	$ 656,823,908
Expenses, taxes and fixed charges	313,103,060	560,159,965
Net income	59,398,740	96,663,943
Total assets	1,665,120,922	2,595,396,033
Plant and equipment	1,435,912,142	2,129,773,760
Permanent investments	99,484,744	248,625,115
Cash and current items	82,026,232	156,485,584
Capital stock	665,944,471	1,001,428,084
Funded debt	503,129,399	736,898,021
Net surplus	148,960,148	226,305,722
Number salaried employees	44,705	57,764
Salaries	$ 46,566,869	$ 94,006,233
Number wage earners	199,785	232,569
Wages	$ 123,088,197	$ 247,531,589

C. Land Telegraph Systems in the U. S.

(Compiled from Reports of Bureau of the Census.)

Year	1917	1922
Number of systems	21	19
Miles of pole line	241,012	252,991
Miles of single wire	1,888,793	1,849,312
Number of messages	155,263,206	185,841,267
Number of telegraph offices	28,865	27,253
Total revenues	$ 92,954,370	$130,538,660
Telegraph revenues	91,312,567	128,630,859
Other revenue	1,641,803	1,907,801
Total expenses	80,825,970	114,863,901
Net income	12,125,400	15,674,759
Total assets	226,406,952	321,912,658
Plant and equipment	163,487,637	254,029,933
Permanent investments	29,564,702	31,874,833
Cash and current items	33,354,613	36,007,892
Capital stock	106,360,237	104,465,778
Funded debt	33,827,549	67,394,000
Net surplus	28,567,960	62,849,230
Average number of employees	49,608	64,902
Wages	$ 37,879,560	$ 71,491,743

D. Comparative Income Account: Western Union Telegraph Co.

(Compiled from Reports of Western Union Tel. Co.)

Year	1923	1924
Gross revenues	$111,733,560	$112,861,555
Operating expenses and taxes	97,712,714	99,581,556
Net operating revenue	$ 14,020,846	$ 13,279,999
Other income	1,894,910	2,374,008
Total net income	$ 15,915,756	$ 15,654,007
Fixed charges	2,306,850	2,317,325
Appropriation for cable development	2,000,000	1,000,000
Dividends	6,982,797	6,982,928
Net surplus after appropriations	$ 4,626,109	$ 5,353,754

E. Comparative Income Account: American Telephone and Telegraph Co.

(Compiled from Reports of Am. Tel. & Tel. Co.)

Year	1923	1924
Gross revenues: dividends	$ 54,078,663	$ 63,559,326
" " : interest	13,371,563	15,010,404
Telephone operating revenues	71,840,735	75,513,106
Total gross revenues	$139,290,961	$154,082,836
Operating expenses	43,901,043	46,463,473
Net income	$ 95,389,918	$107,619,363
Deductions from net income:		
Fixed charges	13,697,737	16,573,042
Dividends	63,274,388	70,918,227
Reserves	3,000,000	3,000,000
Surplus	$ 15,417,793	$ 17,128,094

F. Consolidated Income Account of the Bell Telephone Systems

(Excluding duplications.)

(Compiled from Reports of Am. Tel. & Tel. Co.)

Year	1923	1924
Gross revenues	$623,110,988	$677,902,813
Total expenses including taxes	485,735,069	529,126,194
Net income	$137,375,919	$148,776,619
Interest payments	37,751,447	41,531,071
Balance for distribution	$ 99,624,472	$107,245,548
Dividends	72,428,617	82,602,906
Surplus	$ 27,195,855	$24,642,642

G. Automobile Production and Registration in the U. S.

(Compiled from Reports of U. S. Census Bureau for Production; from Reports of Bureau of Public Roads for Registration.)

Year	Production		Registration	
	Passenger Cars	Trucks	Passenger Cars	Trucks
1920	1,883,158	322,039	8,225,859	1,006,082
1921	1,514,000	147,550	9,483,391	979,904
1922	2,385,010	253,552	10,959,571	1,278,804
1923	3,702,391	391,548	13,539,608	1,552,569
1924	3,262,307	376,081	15,460,649	2,131,332

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PART FIVE
SOCIAL CONDITIONS AND AIMS

DIVISION XXII
JUSTICE AND MAINTENANCE OF ORDER

CRIME CONDITIONS IN THE UNITED STATES

By Frederick L. Hoffman, LL.D.
Consulting Statistician, Prudential Insurance Company of America

Bad State of Affairs.—The crime situation in the United States has never been worse than now. Evidence is absolutely convincing that criminal activities are being organized and carried out with consummate skill by an element of considerable intelligence and amply supplied with the necessary funds. The situation is giving most serious concern to all who believe that far-reaching measures and drastic changes in our judicial administration are required to bring about a return to more normal conditions. The tendency affects every phase of criminal activity, but is more pronounced in crimes against the person than crimes against property.

About the former group, the outstanding fact is that the United States has the highest homicide record of any civilized country. The record of murder victims is reflected accurately by the homicide mortality statistics. Statistics of this character permit of a reasonably exact comparison with other countries. The result is invariably decidedly to the disadvantage of the United States. In 1924, on the basis of a conservative estimate, not less than 11,000 persons were murdered in this country. There are no judicial statistics which would justify definite conclusions as regards the number of murderers apprehended, indicted and adequately punished, but there are reasons for believing that but a fraction of the offenders are ever brought to justice.

Lack of Convictions.—In a recent address, Judge John C. Knox of the United States District Court stated, on the basis of the record of the Chicago Crime Commission, that for 991 murders reported in that city from January 1, 1921, to November 1, 1924, there were only 250 sentences. He adds the following comments:—

> "The lawbreaker of the present day has at his command every aid and facility afforded by the dissemination of knowledge and the advances in science which has characterized these latter years. Given a swift automobile, a repeating pistol, a telephone with which to arrange plans with a confederate, and the requisite amount of nerve, coupled with the knowledge that our fundamental law is unduly considerate of criminals, the murderer of the highway may proceed to carry out his purpose with comparative security.
>
> "He is aware that he cannot be interrogated against his will; he knows that his house cannot be searched except with the loss of much time and the expenditure of great technical effort by prosecuting officials.
>
> "Under the influence of the writer of scenarios and the dramatist there is a popular impression that 'frameups' constitute the chief occupation of those charged with the detection and punishment of crime. Distrust of police testimony is the result. In short, the perpetrator of a major crime realizes that his offense, if prosecuted at all, will be disposed of with the ponderous and slow-moving machinery of the seventeenth century manufacture."

Homicidal Death Rates.—For recent years the homicide rate of the United States has been about 8.4 per 100,000, as against for England and Wales, 0.5 per 100,000, for Scotland, 0.2, for Ontario, 1.6, for Australia, 1.6, and New Zealand, 1.4, but the average rate of the United States fails to reveal the extraordinary high rates for certain cities and sections of the country, particularly in the South.

Memphis, Birmingham, Jackson and other Southern cities all have a local homicide death rate very considerably above the average. It requires no extended investigation to disclose the lamentable fact that the primary cause of our high murder rate is the ease with which firearms can be obtained by mail from firms not unwilling to make a considerable profit from the direct encouragement of murderous practice. Certain of our large mail order houses have of late, however, discontinued the practice but the evil is one of great extent and requires to be effectively dealt with by Congressional legislation.

Lethal Weapons and Materials.—About 70 per cent. of all the murder deaths of this country are directly the result of firearms. Quite recently there was a case of a boy seven years of age who shot his sister, age five, because she called him an offensive name. He obtained the weapon by opening a drawer in which the pistol was kept by his father. His only explanation was, "I was awfully mad and I meant to shoot her." Thus the crime trend is extending downward to the younger ages and permeates every section of organized society.

What is true of firearms is also true of poisoning. Poisonous substances can be obtained without difficulty in most sections of the country upon the specious plea that the material is required for a lawful purpose. There is the utmost urgency of decidedly more stringent safeguards than are at present in vogue. Evidence available also tends to prove that crimes against the person are becoming more brutal. The callousness of some of our criminals is appalling. The Franks murder case is but one of a number of recent crimes indicative of a state of mind which cannot be otherwise thought of than as diseased and the direct result of present day conditions.

An enormous literature is disseminated among the young which glorifies crime and the criminal, and the ease with which the consequences may be escaped by skillful methods. There are articles directly suggestive of new criminal practices, with every assurance of success and escape from punishment. Our murder trials are often a farce and an insult to public intelligence. Murderers are dramatized and made heroes while public resentment is shown towards judge and jury in their attempt to enforce the law. The recent Chapman trial is a sorry illustration of the state of public mind in this respect. The outlook at the present time gives assurance that this criminal will finally be hanged as he deserves.

The two most important improvements in recent years are the organization of the National Crimes Commission, of which Mr. F. Trubee Davison is Chairman, and the organization of a similar commission to bring about Congressional legislation regarding the sending of pistols through the mails, through the efforts of Mr. Mark O. Prentiss. Experience has shown that organized movements of this character are absolutely necessary if only for fact-finding purposes to place the true situation plainly before the public.

Capital Punishment.—This has of late years received considerable attention and a strong opposition to the death penalty is developing. In my own judgment, in the light of such investigations as I have made and participation in two electrocutions, the indications are that capital punishment is antiquated and does not serve the purpose of an effective deterrent. Juries are reluctant to impose the penalty and Governors are reluctant to enforce it. It seems established that its universal abolition would speed trials for murders and lead to the more prompt conviction of the murderer. The long delay in most of our criminal trials is a national disgrace and the placing of dangerous criminals on the parole system is a questionable procedure. There is much to be said in its favor regarding minor offences, but in the case of life prisoners, it would seem that the prerogative of exercising clemency should only be exercised in very rare cases. The parole system in Massachusetts seems to have worked well and to have done much good for the rehabilitation of the criminal element as useful members of organized society.

Crime Statistics.—The most urgent need of the present day is the initiation of a system of uniform judicial statistics corresponding to the efforts that have been successful in establishing uniform national statistics of births, deaths, marriages and divorces, etc. The crime statistics collected by the Census Office at decennial intervals are of little value. There is urgent need of more drastic reforms in this direction, for until the facts of the situation are brought plainly to public attention and dealt with on the basis of critical as well as a strictly impartial analysis, the true nature of the crime problem cannot possibly be understood on the part of all concerned.

Police.—Another urgent need is for more adequate police protection in both cities and rural sections. The admirable precedent of State Police in Pennsylvania, New York and other sections should be adopted on the part of every state of the entire United States, including Alaska. A precedent in this respect is the Royal Mounted Police of Canada which has a record not matched by any similar organization anywhere. The Canadian murder rate is low, the apprehension of criminals is almost a certainty, convictions are prompt and sentences are severe. It may also be said that when the death sentence is imposed in Canada it is almost invariably carried into effect.

It goes without saying that our police should be better paid, while the force should be increased to meet the more complex crime situation resulting from a rapidly increasing population aggregate.

Crime Against Property.—Crimes against property have likewise increased enormously and the amount of stolen property runs possibly into billions in the course of a few years. All that is true of a lax judicial administration as regards crimes against the person is even more true regarding crimes against property. The question may be raised as to whether restrictions should not be imposed upon bonding companies, which in many cases facilitate the escape of the criminal from justice and punishment.

Finally reference may be made to an increase in arson, directly encouraged by over-liberal practices on the part of certain fire insurance companies who fail to make adequate inquiry into the causes of the fires or the circumstances connected therewith. The president of the Glens Falls Insurance Company, Glens Falls, N. Y., has recently made some startling statements as regards the increase in arson during recent years which are deserving of thoughtful consideration.

In its last analysis, crime is a disease of society which can be cured only by more thorough education making for character and discipline rather than for intellectual or material and worldly success. There are reasons for believing that present day educational efforts in this respect fall lamentably short of the ideal.

MOB VIOLENCE AND LYNCHING

By James Weldon Johnson
Secretary, Nat. Assoc. for Advancement of Colored People

History.—With the exception of sporadic riotous outbreaks during strikes or occasioned by industrial disputes, race riots and lynchings during the past few years have centered about the relations of white and colored people in the United States. Mobs have been formed for the most part to lynch colored men and in some instances colored women, although white people have been among the victims. Lynch law, formerly applied in frontier times to horse thieves, gamblers and other undesirable elements of the community, has become almost exclusively the means of the white group for terrorizing the colored group.

The years immediately preceding 1925 showed a sharp decline in the number of lynchings. An organized, persistent and nation-wide campaign undertaken some fifteen years ago by the National Association for the Advancement of Colored People, in the course of which lynchings were investigated and the facts established, made clear to a large section of the American public that lynchings do not, as had been commonly supposed, occur only in punishment of the crime of rape. The National Association for the Advancement of Colored People, in the only authoritative compilation of the kind, "Thirty Years of Lynching," to which annual supplements have been added since its publication in 1919, made clear that less than 20 per cent. of the 4,000 victims of lynching mobs in the United States have been accused of rape.

Dyer Anti-Lynching Bill.—Growing sentiment in favor of a federal anti-lynching bill, such as was sponsored by Representative Leonidas C. Dyer of Missouri, passed by a vote of 231 to 119 in the House of Representatives in 1921 and blocked by a filibuster of southern senators in the Senate, brought home to state officers the necessity for state action if states rights were not to be further infringed. The result of the strong sentiment in Congress for such a federal law, and the agitation for its enactment by the National Association for the Advancement of Colored People, was a sharp decline in the number of lynchings from 61 in 1922 and 28 in 1923 to 16 in 1924, and during eleven months of 1925 there were only 14 lynchings.

Anti-Lynching Organizations.—In the past few years, following the lead of the Advancement Association, other bodies, such as the Federal Council of Churches and the Inter-racial Committees of the South, have undertaken to organize public sentiment against mob law. In consequence newspapers and public men generally have taken up the burden of creating an anti-lynching sentiment and in a number of cases during the year mobs have been repulsed by sheriffs and jail officers who have not hesitated to inflict casualties in order to maintain due process of law. One such episode occurred in May when five members of a mob were shot by officers guarding two negroes in a jail in Dallas, Tex. In North Carolina sentences ranging from thirty years to two years in prison were imposed upon five members of a mob which had mutilated a white man after removing him from a local jail.

Atrocious lynchings still continued to be reported during the year 1925, however. One insane patient was dragged from a Georgia institution and lynched by a mob. A colored man, who maintained his innocence of an attack upon a white woman, was beaten, mutilated and finally burned alive by a mob in Mississippi, one of whose members was quoted by the Memphis *News Scimitar* as boasting that there would be no investigation, prosecution or conviction of any mob member.

Attacks on Negro Holders of Real Estate.—Another occasion for mob violence assumed prominence during the year 1925. This was the encroachment of colored people upon residential sections in northern cities, which had been inhabited theretofore by white people. The expansion of colored residential sections, owing to the northward migration of colored people from the South, and the consequent enormous increase in the colored population of northern cities, provoked hostile demonstrations in many parts of the country. On Staten Island, New York, the home of a colored postman was repeatedly attacked, his fire insurance cancelled and threats made against his life. In Los Angeles, Pittsburg, Roanoke, Va., Kansas City, Mo., and other cities, homes were bombed or threats made against colored residents in white neighborhoods. In Detroit, on September 9, in the course of a mob demonstration against the home of Dr. O. H. Sweet one man was wounded and one killed. Eleven colored people in the house at the time were tried on charges of first degree murder. This case became a dramatic focus in the widespread situation through the retention of Clarence

Darrow by the National Association for the Advancement of Colored People to defend the accused colored people.

RECORD OF LYNCHINGS FOR 1925

February 17.—Cruger, Miss.: *Hal Winters* and an *unidentified Negro* were taken from Holmes County officers and lynched. Winters was alleged to have shot and killed Wisley P. Martin, a plantation manager. He was accompanied by the unidentified man whose connection with the crime is not clear.

February 26.—Benton, La.: *Joe Airy*, alleged slayer of a state highway officer, was lynched by a mob, near Benton, after being wounded by a deputy sheriff, who, it is said, fired after Airy had drawn a revolver when surrounded by a posse. The mob then hanged the Negro.

March 2.—Rocky Ford, Ga.: An unidentified Negro, said to have confessed attacking a fourteen-year-old white girl, was burned at the stake two and a half miles from Rocky Ford. . . . He was manacled, wood was piled about him, soaked with gasoline and fired.

March 20.—Waverly, Va.: A Negro accused of attacking a white woman was taken from the Sussex County Jail at Waverly by a mob and lynched.

April 21.—Tylertown, Miss.: One *Buckley* was lynched by a mob, accused of striking a six-year-old white child. He had been in jail a month, being unable to secure bail. He finally found some one to go his bail, was released and went to his home. He had not been at home very long before a mob formed, surrounded his home, broke down the doors, took him out and hanged him.

April 13.—Jellico, Ky.: *Jim Evans*, accused of killing the Chief of Police, was shot to death by a mob of 200 white citizens. The Chief of Police had gone to Evans' home to arrest him on a charge of being drunk.

May 13.—Seminole County, Fla.: *Jack West* was taken from a train and lynched near Longwood, Seminole County. The body, riddled with bullets, was found tied to a tree. West had been arrested charged with house breaking and assault on a three-year-old white girl. He was acquitted of the charge.

May 30.—Camden, Ark.: An unidentified man was taken from the hands of county officers near Camden and strung to a tree and shot to death by a mob said to number about a hundred. The man was suspected of having attacked a white woman.

June 18.—Castlegate, Utah: *Robert Marshall*, slayer of the City Marshal, Milton Burns, was hanged by a mob near Castlegate. On June 15, he shot and fatally wounded Burns who had some months previously taken a pistol from him.

August 7.—Excelsior Springs, Mo.: *Walter Mitchell*, accused of attacking a white girl, was taken from jail by a mob, and hanged.

August 12.—Scobey, Miss.: *Sidney Towns* (insane), said to have killed an aged white man and fatally wounded the man's sister, was taken from the sheriff by a mob of seventy-five men and his body was riddled with bullets.

September 20.—New Albany, Miss.: *L. Q. Ivy* was taken from officers and burned at the stake by a mob. Ivy was said to have confessed to attacking the daughter of a farmer eighteen miles from New Albany on September 18. He was returned to the scene of the attack and burned to death.

September 20.—Milledgeville, Ga.: *Willie Dixon*, inmate of the State Insane Asylum, said to have killed a nurse at the asylum, was chained to a tree and beaten to death by a mob. The coroner's jury returned a verdict that the victim met his death at the hands of parties unknown.

MOVEMENTS TO CHECK CRIME

By Louis N. Robinson

Secretary, Pennsylvania State Penal Commission

National Crime Commission.—Leaving out of account movements not directed primarily toward reduction in crime nor promoted by those whose main interest is in the crime problem, within the last year only one new organization seems to have been founded for the express purpose of reducing crime, namely, The National Crime Commission, with headquarters in New York. Officers of this Commission are: Chairman, F. Trubee Davison; treasurer, General Samuel McRoberts; and chairman of the Finance Committee, Charles H. Sabin.

This Commission has so recently completed its organization that it has as yet hardly begun its work. Its primary purpose appears to be to awaken public opinion and to make available facts upon which conclusions may be based and action taken. The following Sub-Committees have been appointed: Local Organization; Police; Social, Educational and Industrial Conditions Affecting Crime; Legal Procedure, Prosecution and Judicial Administration; Medical and Expert Testimony; Legal Education and Standards of Professional Conduct, Pardons, Probation, Penal Laws and Institutional Correction. In addition it is planned to establish a statistical and research bureau in the Executive Office of the Committee in New York.

Prisons.—Of considerable significance to those who feel the need of expert assistance in the field of Penal Administration is the appointment by the Russell Sage Foundation of Dr. Hastings H. Hart as consultant in the field of Delinquency and Penology. Dr. Hart was for years the director of the department of Child-Helping of the Russell Sage Foundation. Even in this position, much of his time was given to this work especially along the lines of care for juvenile delinquents. At his own request, he was released from this department in order that his entire time might be at the disposal of groups interested in Penal Reform.

Dr. Hart has made a careful study of United States prisoners in county jails and workhouses throughout the United States. This study should be read in connection with Joseph F. Fishman's book, *Crucibles of Crime.* Dr. Hart's special knowledge was also utilized by the Federal Grand Jury of Houston, Texas, in the making of their report, and his services have been recently utilized in both Chicago and St. Louis.

Prison Labor.—Some two years ago the National Committee on Prisons and Prison Labor developed a scheme of marketing prison made products. Feeling the State Use System of prison labor to be the coming system, they endeavored to broaden this concept of prison employment by making it a *States* Use System. Under this plan a state could sell not only to itself and its own institutions but to other states and the institutions of these other states. This would make possible the allocation of industries between the states and a broader, yet not an open, market for prison products. To one who knows the evil results to prisoners of idleness and of employment under bad conditions, any movement that promises the sane employment of prisoners must be looked upon with sympathetic interest and encouragement.

Probation.—The National Probation Association, Dr. Charles Platt, president, Mr. Charles L. Chute, 370 Seventh Avenue, New York, secretary, continues actively at work in the field of probation. It has recently completed a state-wide survey of probation and parole work in Wisconsin, and is planning a similar survey of probation in Michigan. In coöperation with the Penal Affairs Committee of Pennsylvania it has carried on an extensive survey of probation in all the counties of that state. How necessary such surveys are, can be seen from the situation in Pennsylvania where numerous counties make no use whatsoever of adult probation, and where several counties are without a juvenile probation officer.

Through the efforts of this organization, the enactment of the Federal Probation Law was secured during the final week of the last session of Congress. It will now be possible for Federal Courts to place on probation, offenders who can only be harmed by commitment to Federal prisons and county jails. The Association is seeking to bring about an orderly development of probation through the work of committees on standardization. The Association itself has prepared a model juvenile court law, and its committee on records and statistics has produced a set of blank forms for juvenile probation case records. It has another committee on domestic relations courts and we may soon look for recommendations both as to law and as to administrative records in this rapidly developing field of probation work. The extension of the use of probation brings with it inevitably problems of administration, and it is the aim of this association to be in a position to throw light on these problems as they arise.

Penology.—In several of the states, both the citizens and the public officials have displayed considerable interest in the problem of crime. Notable work has been done by the Missouri Welfare League and by Dr. Glenn Andrews, state prison inspector of Alabama. In no other state has this interest been greater than in Pennsylvania where we have for the first time had the State Department of Public Welfare and private agencies, notably the Penal Affairs Committee of Pennsylvania, working together for improvement in the field of Penology. As already stated, the National Probation Association coöperated with the Penal Affairs Committee in conducting an extensive survey of probation throughout the state. This survey was not confined, however, to probation alone, but included the study of parole and of county jails. The study was made with the full knowedge and coöperation of the State Department of Public Welfare. Another example of cooperation between public officials and private citizens is offered by the survey that is now being made of the Philadelphia Municipal Court by the Bureau of Municipal Research. After a conference with a group of interested citizens, the Presiding Judge of this court extended an invitation to the Bureau of Municipal Research to make a thorough-going study of its work. At the present time this work is being carried on with the help of the best equipped men and women in the country. The State Department of Public Welfare has also of its own initiative set about transforming the old Penal Institutions of Pennsylvania and has obtained already notable success in the Western Penitentiary at Pittsburgh.

Prison Reform.—The Penal Affairs Committee of Pennsylvania, to which reference has already been made, is very active. Through its influence with the legislature of 1925, the reformatory for women at Muncy is to be enlarged to care for all women receiving a sentence of one year or more, and the parole system of the state studied by a state commission. Believing that careful investigation should precede the formulation of plans, it is gradually building up a staff of experienced people to care for this work. The Pennsylvania Prison Society, oldest of all prison societies, has also taken on a new lease of life. A recent bequest of money has enabled the Committee on Discharged Prisoners of this society to engage a well trained social worker to take care of this part of their work.

To one who is at all conversant with the problems of criminology, all these efforts to stamp out crime that have been enumerated seem, in comparison with the need, pitifully weak and insufficient. They are, however, symptomatic of the increasing interest that is being taken in the problem. A hundred years ago, it was a topic of live concern. There followed then long years of apathy and neglect. Perhaps the recent outbreak of crime and violence will compel us to think through this problem again after this long lapse of years. There is great need for organized effort in each state if any headway is to be made in the effort to stamp out crime. Those who come into the work must remember, however, that it is a problem not in cavalry tactics, swiftly executed, but in trench warfare, long drawn out.

ADMINISTRATION OF CRIMINAL JUSTICE

By Andrew A. Bruce
President, American Institute of Criminal Law and Criminology

Increase of Crime.—The year 1925 furnishes a promise for the future rather than a record of accomplishment. In it has been brought to public attention the seeming inadequacy, if not the breakdown, of our whole criminal administration, and the year is marked by the increase in the number and activity of private organizations whose purpose is not merely to investigate the causes of crime but to stir the public officials to greater activity in its suppression.

Prior to the World War and for some time after its termination the emphasis of the reformer had been laid on the reformation of the criminal and the amelioration of his condition and but little attention was paid to the defects in the administration of justice which interfered with his arrest and punishment. The large increase in the crimes of violence, however, which followed the war has resulted in a feeling of unrest and dissatisfaction and to such an extent that speakers and writers are everywhere urging not only a reform of our courts and of our police organizations, but a recasting of the very foundations of the criminal law and are questioning the applicability to this age of the ancient safeguards such as the writ of habeas corpus, the freedom from self-incrimination, the unanimous verdict of twelve men and the liberal bail system which, in the age of a bloodthirsty criminal code, "liberty threw around her children."

Hoffman's Investigation. — Frederick L. Hoffman, the consulting statistician of the Prudential Insurance Company of America, in a series of articles startled the nation by statistical proof of the large number of homicides in the United States, and crime commissions such as those of Chicago, Baltimore, and Cleveland equally surprised the country by their records of crime and of administrative inefficiency. At first spasmodic efforts were made to deal with the situation in the various localities. In 1925, however, these records were given a wider publicity and we now seem to be at the opening of a new era of a nationwide reform in the matter of the administration of criminal justice. At first Mr. Hoffman and the various reform organizations were content to urge a greater publicity and a federal inquiry into the whole matter, but the demand now appears to be for more drastic action and there is every evidence that such will be the result. Among the protagonists of this policy has been Marcus A. Kavenagh, for many years a trial judge in the city of Chicago and for many years a careful though perhaps a more or less prejudiced student of crime and of the criminal. On March 15, 1925, in speaking before the St. Louis Bar Association, he stated that "from a careful estimate" he had concluded that there were "at large, unpunished and unafraid, in the United States, at least 135,000 crimson-handed women and men who unlawfully have taken life," and that though 8,500 would be a conservative estimate of unlawful homicides a year during the last twenty years, there were on the date of his address confined in the penitentiaries not more than 18,000 persons who had been convicted of such offenses. He said that after making due allowance for executions and other kinds of deaths there remained his estimate of 135,000 persons, which was more than all our clergymen of all denominations, all our male teachers put together, and 52,000 more sluggers at large than we have policemen. He also stated that competent observers reckoned that there are in this country 350,000 men and women who live partly or entirely by crime and that the number is increasing with incredible rapidity.

Expert Discussions.—Various reports committees of the American Bar Association and of other organizations have made similar statements and an invidious comparison has been drawn by most of them between the administration of the law in America and in England and in the English dominions. It is true that many of these statements may be exaggerated and that at the annual meeting of the American Bar Association which was held at Detroit, Michigan, in August, 1925, Oscar Hallam of Minneapolis, who was formerly a chief justice of the Supreme Court of Minnesota and for many years a trial judge, questioned the accuracy of many of the figures that have been presented and especially criticised the American tendency to use England as a criterion and the experience there as a conclusive proof of the shortcomings of the American system of criminal administration. Even he, however, admitted the seriousness of the situation. "Homicide in the United States," he said, "alarming as the total is, shows an average annual decrease. Increases are recorded among the colored population and in many of the larger cities. The aggregate of the other crimes has materially increased, due partly to increases in holdups and in banditry and due largely to increase in traffic-law violations, liquor offenses, and the mass of new crimes. Old-fashioned crime, such as burglary, larceny, from the meager statistics available, seems to show little increase. . . . The crime record of Canada and that of territories and cities and towns in the United States adjacent to Canada and similarly situated is much the same."

But be the facts what they may, the large number of crimes of violence in the United States and the publicity that has been given to them by the press (and perhaps it is this very publicity and our more adequate means of information which makes us believe that we are more lawless than our ancestors) have aroused the reformer to a new activity. We are still prepared to believe with Judge Harry Olson of Chicago that much of crime is due to heredity and that the incipient criminal and the moron should be segregated before his crimes have been committed, but we are none the less insistent that criminals of all sorts shall be arrested, segregated, and punished; and one has only to read the reports of agencies such as the crime commissions of Chicago, Baltimore, and Cleveland to be satisfied of the fact that a very large proportion of our criminals are not arrested and much less punished. Appalling as the figures may be, the total number of our confirmed criminals does not exceed one third of one per cent. of our population, and we are more and more becoming impatient with a system of law enforcement and even of substantive criminal law which will allow this handful of men and women to terrorize and to defy millions of law-abiding citizens.

The problem indeed has become nationwide and national organizations are preparing to enter the field. Not only have the Bar Associations of California, Missouri, Illinois, and other states, either alone or in conjunction with other public agencies, undertaken a survey of their whole criminal law; not only has the American Institute of Criminal Law and Criminology, at the request of the local authorities, undertaken a survey of the criminal administration of the city of Memphis, Tennessee, and the various societies and organizations of Chicago undertaken a similar enterprise, but the American Law Institute, the American Bar Association, and the National Crime Commission have all entered into the field.

Philadelphia Police.—On the other hand, a noteworthy experiment in effective police administration will be terminated on December 31, 1925, by the refusal of President Coolidge to longer extend the leave of absence of Brigadier-General Smedley D. Butler of the Marine Corps, who at the request of Mayor Kendrick of Philadelphia had been allowed to accept the appointment of chief of police of that city. The practical success of this system was perhaps evidenced by the request of both Mayor Kendrick and Senator Pepper for the reappointment of the officer. But whether the experiment is one which will be popular in our American democracy is a matter of some doubt. It is questionable whether we will ever be able to apply to a city police force the methods of the American army and whether the American people, and especially the American labor unions, will be willing to have our police forces subject to other than local political control. The function too of the policeman is not that of the private soldier. A private soldier may be dishonest and personally unreliable in an army and yet be an effective unit when he cannot be such in a police force. The private soldier does what he is ordered to do. He has little personal responsibility. Over him and directing him is his corporal and above the corporal is the sergeant, and so on up to the commanding officer. On his own beat, however, the policeman is more or less an autocrat. He has a large territory to patrol. He must use his own judgment, his own discretion, and his own initiative. Though in Philadelphia the head of the police force was a military officer of efficiency and experience, the troops that he commanded were subject to all of the temptations and all of the restrictions of association and environment and of local politics. We have been brought up in an atmosphere of self-government and it is doubtful whether our local politicians will ever be willing to dispense with the direct control of their administrative and police officers, which in its essence is so detrimental to an efficient and fearless criminal administration.

National Probation.—For the amelioration of the condition of the criminal, there was in 1925 but one notable measure. By an act which was signed by the President of the United States on March 3, 1925, Congress authorized the United States district judges in proper cases to suspend sentences and to place the offenders upon probation "after conviction, or after a plea of guilty or nolo contendere for any crime or offense not punishable by death or life imprisonment." Probation systems already existed in all of the American states either under legislative sanction or an assumed inherent power of the courts, and the act in question merely extended the practise to the federal courts. It was significant, however, as it evidenced the fact that though as a people we are determined to suppress crime we are still humane.

Crime Commissions and Associations.—National Crime Commission, New York. Baltimore Criminal Justice Commission, James M. Hepbron, Managing Director. Crime Commission of Los Angeles, 940 Merchants National Bank Building, Raymond I. Turney, Director. Law Enforcement Association of Kansas City, 511 Continental Building, Kansas City, Missouri, Ward C. Gifford, Executive Secretary. Cleveland Association for Criminal Justice, 1237 Guardian Building, J. M. Shallenberger, Operating Director. Chicago Crime Commission, 21 N. La Salle St., Chicago, Ill., Henry Barrett Chamberlin, Operating Director. The Commonwealth Club of California, San Francisco, Section on Administration of Justice, Hugh Henry Brown, Chairman, 800 Foxcroft Bldg., San Francisco, Calif. Missouri Association for Criminal Justice, Arthur E. Laskley, St. Louis, Missouri, Operating Director—Missouri.

PRISONS AND PRISON ADMINISTRATION

BY AUSTIN H. MACCORMICK

PROFESSOR AT BOWDOIN COLLEGE

Prison Congress.—The Ninth International Prison Congress was held in August in London. About 500 delegates from over fifty countries attended the sessions. The official delegates from the United States, appointed by the President, were Dr. Herman M. Adler of Illinois, Hon. Sanford Bates of Massachusetts, Dr. Amos W. Butler of Indiana, Dr. Hastings H. Hart of New York, Mrs. Jessie D. Hodder of Massachusetts, Dr. Charles H. Johnson of New York, Dr. R. F. C. Kieb of New York, Lewis E. Lawes of New York, Dr. Frank Moore of New Jersey, William F. Penn of Pennsylvania, Dr. R. R. von Kleinsmid of California and J. J. Sullivan of Minnesota.

The method followed at the Congress was a new one. Instead of papers being read they were printed and were discussed in sectional sessions, which in turn presented resolutions for discussion and adoption at the general sessions of the Congress. The sectional sessions discussed subjects under the general heads of Legislation, Administration and Prevention. Such resolutions as were passed at the general sessions became the official acts of the Congress.

The annual congress of the American Prison Association was held this year at Jackson, Mississippi, from November 7 to 14. Hon. Sanford Bates, Commissioner of Corrections of Massachusetts, was elected president of the Association.

Officials.—During the year several wardenships have changed hands. One of the most important changes was in Indiana, where Warden Fogarty resigned after thirty-three years of prison service and was succeeded by his deputy, W. H. Daly. Mr. Fogarty belonged to a group of wardens whose administrations began in the days of the old prison system. Only a few representatives of this group of long-service wardens now remain in office.

In Maryland P. J. Brady succeeded Col. C. B. Sweezey in June. Other wardens who have been appointed during the present year are Richard E. Davis in Utah, A. B. Middleton in Montana, W. H. Mackey in Kansas, Harry H. Jackson at Jackson, Michigan, J. W. Wheeler in Idaho, and Morris Fish in Maine. At the Southern Illinois Penitentiary the state superintendent of prisons, E. J. Green, has been acting warden since Jan. 1, 1925.

The experiment in dual control at the New Jersey Prison, where Calvin Derrick was appointed Director of Administration and Industries to take over many of the warden's duties, was apparently not successful. No successor to Mr. Derrick, who resigned, has been appointed. In several prisons forms of dual or multiple control may be found. This ordinarily takes the form of a separation of the control of the industries and the prison proper, the former being put under a superintendent of industries who is not directly responsible to the warden. The idea of a plural executive is applied to the highest degree in Missouri. There the board of five commissioners, which controls four penal institutions, is resident at the prison. Four members of the board have charge of distinct departments: discipline (under a commissioner called the warden), pardons and paroles, farms, and industries. The fifth commissioner, who is director of the board, is the coordinating head, but the actual management of the prison is divided among the four commissioners named.

Construction.—Some new construction of importance has been carried on during the year, but in the main the prison plants of the country are progressing slowly toward the accepted modern standard for well-rounded plants. Practically every prison in the country is over-crowded and several prisons have populations double their ordinary capacity.

In Illinois at the new Joliet prison, work was resumed this summer on the fourth of the eight circular cell-houses for which the plans call. The wall, administration building, isolation building, mess-hall and commissary department, and several of the shops have been completed. About half the population has been transferred to the new prison. The prison is being built with inmate labor.

In California at San Quentin appropriations have been made available to complete a cell-house which was begun in 1907 and on which work was discontinued in 1912 after the four walls had been completed. Since the work stopped the population of the prison has practically doubled and a serious condition of over-crowding exists. Ground was broken this fall for a new woman's prison, to be built just outside the walls of the prison proper. At present the sixty women prisoners are confined in a section of the men's prison designed for twenty-seven inmates.

At Leavenworth work is progressing slowly on the imposing dome of the administration building and on the shoe-shop, which has been under construction for seven years. This shop is designed to provide work for a thousand prisoners, about one-third of the population. As there are no industries at Leavenworth the immediate completion of the shop is imperative. All construction work on this building and on the dome is being done by the inmates.

Michigan has begun work on a new prison at Jackson, about three miles from the city. It is designed for 5,510 prisoners. The wall, which is first being constructed, will enclose sixty-four acres, the largest prison enclosure in the country. Here also inmate labor will be used in the work of construction.

Work on the new prisons at Sing Sing and Rockview (Pennsylvania) is practically at a standstill. At each of these prisons a cell-house housing about 250 men has been completed. At Great Meadow, the so-called "honor prison" of New York state, the prison is now being enclosed by a 24-foot wall.

Industries.—The year 1925 has seen little improvement in the industrial situation in American prisons and it grows increasingly critical. Several prisons, notably Leavenworth among the larger and Montana among the smaller, have no industries and the problem of idleness is acute. Over half of the prisons in the country, including several of the largest and most important ones, suffer from semi-idleness.

In the middle west a small group of prisons have effective industrial organizations. In the Minnesota prison at Stillwater, for example, during the last fiscal year the industries paid the full cost of the prison, over $100,000 in wages to the prisoners and a net profit of nearly $40,000. The Wisconsin and Missouri prisons are self-supporting and the Michigan prison at Jackson has a good industrial organization with diversified and profitable industries.

The industrial situation in several of the older Eastern prisons is bad. At Sing Sing, for example, only 25 per cent. of the prison population is engaged in productive industry.

The Minnesota prison and others have demonstrated that prison labor can be made productive. Throughout the country, however, there is a general tendency to accept the theory that prisons should not be expected to be even approximately self-supporting. During the current year, as in past years, legislatures in various states have failed to pass appropriations providing adequate industries in the prisons.

Present conditions in prison industries indicate that the state-use plan alone will not be profitable until there is greater coördination between the prisons and the other state institutions or departments which constitute the prison market. In the smaller states it is becoming apparent that this plan is not likely to succeed, because of the limited market. A combination of the state-use plan with the state-account plan (production for sale on the open market) is proving more profitable than either plan alone. The opposition of labor organizations and of manufacturers is constantly directed against those prisons which have the state-account system, and constitutes the most serious obstacle to effective industrial organization in American prisons. During the summer of 1925, to cite only one instance, the refusal by union brick-layers to lay brick made at the Jackson prison threatened to cripple the large and profitable brick plant there.

One of the most significant industrial projects now being carried on in our prisons is the road-work in California, employing nearly 600 prisoners on a unique pay basis. Men in the road-camps are paid $2.10 a day by the State Highway Department and are charged for food, clothing, transportation, salaries of guards, and all other expenses of supporting the camps. The prisoner may receive a maximum of 75 cents a day in wages after these charges are paid. The road-work is highly successful and has been expanded this year.

The principle that prisoners should be paid a wage, charged to the cost of production, is becoming well established. The value of the wage is demonstrated most convincingly in those prisons which are successful industrially. In these prisons the daily wage ranges from 25 cents to $1.30 and is considered a necessary feature of effective industries.

Education.—In most of our prisons the educational work is still perfunctory, limited and ineffective. Only a few prisons furnish the type of instruction that appeals to adult prisoners: vocational courses combined with common school subjects closely related to the vocational work. The use of correspondence and university extension courses is gradually growing more general, and has brought some life into the educational work of the prisons where it has been introduced. No prison in the country today, however, has a complete and well-balanced educational program. The most advanced program is that of San Quentin, where the coöperation of the University of California through its extension courses has made possible effective educational work for several hundred prisoners. The study of prisoners taking these courses is supervised and there are additional courses in vocational and standard school subjects. The work is handicapped, however, by insufficient funds and inadequate class-rooms. Until late in 1925 there was no officer in charge of the educational work and it has been organized and directed by the inmates. In spite of all its handicaps it is the best educational program now being carried on in any American prison.

Parole.—The parole work in several states has been under fire during the past year. The opposition to parole in some states has been unintelligent and based on failure to appreciate the value of a proper parole system. In other states the attacks have resulted from alleged abuses and corruption. In Kansas this has led to an almost complete cessation of parole work, with an inevitably bad effect on the morale of the inmates. In Massachusetts, without any charge of abuses, there has been a gradual slowing up of the parole work. This has had a detrimental effect on the morale at the Charlestown prison. In Texas, where the governor has granted clemency in the form of pardon or parole in over a thousand cases during the past ten months, the administration has been attacked on this ground.

With opposition to paroles there has occasionally been an effort to nullify the provisions of indeterminate sentence laws. In Arizona prisoners have been sentenced to serve indeterminate sentences of 75 to 99 years and even of 150 to 160 years. In some cases the minimum and maximum sentences have been placed so close together that the maximum, which is reduced by law for good conduct, expires before the minimum sentence. Such breaking of the spirit of the indeterminate sentence law is manifestly unfair and absurd.

Inmate Participation.—The system of inmate coöperation, sometimes erroneously called "self-government," established by Thomas Mott Osborne over a decade ago in New York at the Auburn and Sing Sing prisons, is still in force. The principle of the system has also been applied successfully for the past five years in the Delaware prison and during the past year in the Maine prison. At Jackson the prisoners at the brick plant, eighty in number, are trusted with great responsibility in the conduct of their own work and discipline and are organized to exercise that responsibility. In various prisons all over the country there have been in minor points applications of the idea that prisoners can be trusted as a community to coöperate with the officials in matters of discipline and administration. The idea of inmate coöperation appears to be gaining ground yearly, although somewhat slowly.

General Summary.—While each year shows only comparatively slight progress in our prisons, the past two decades have seen remarkable changes in prison administration. This is largely due to the changed ideas of the real purpose of the prison. Recognition of the fact that prisons exist for the protection of Society and that men must be fitted to fit into the social order has led to the development of institutions having the rehabilitation and training of the inmates as their primary function. Not only are prison plants gradually changing, but the whole prison program is broadening, both in purpose and method. It is recognized that prisons must be educational institutions in the broadest sense. Toward the ideal, however, much progress is yet to be made. The prisons of today have to a large degree done away with the old abuses; they have not, on the other hand, developed their constructive features correspondingly. In most of our states the virtues of the prisons, where they have any virtues, are negative rather than positive. There is much to be done in the development of modern plants, effective industries, educational and religious work of a high order, and particularly in the setting up of agencies to train men in the duties and responsibilities of citizenship.

INSTITUTIONAL TRAINING FOR DEFECTIVE DELINQUENTS

By Walter N. Thayer, Jr.
Institution for Defective Delinquents, Napanoch, N. Y.

Problems.—The Defective Delinquent is the mental defective, who, through lack of proper early training or through bad association and environment, forms criminal habits.

In a majority of cases, investigation will reveal a defective heredity. This, in itself, is often productive of a bad environment and the formation of habits of delinquency follows as a matter of course.

Treatment of this individual so as to realize success to the greatest degree possible must comprehend training in habits of industry and obedience.

Training. — Academic training should be limited to the lower grades. Manual training and trade instruction should be afforded to the highest degree possible in each case. Successful treatment requires careful analysis of the individual case including therein physical, psychiatric, psychometric, educational and efficiency surveys. The personal and family history, as well as the individual's social and industrial history, should be investigated. Following these surveys the case is ready for training assignments. His accomplishments defined by his history should be compared with the levels determined by the psychometric and efficiency tests, and an effort made to train the individual in a way that will enable him to realize his possibilities. As a rule it will be found that he has fallen far short of this goal.

Academically the average Defective Delinquent has not progressed beyond the third grade. Industrially he is in the unskilled labor class—the "last man hired and first man fired" in the ups and downs of industrial life. He has no commercial basis upon which to sell his efforts and must rely upon a demand for the most menial type of laborer, although he may possess mechanical aptitude which has never had an opportunity for development.

The first thought should be the removal of all remediable physical handicaps as these may well be the proverbial "last straw." Secondly: train the individual educationally and industrially—particularly industrially—to somewhere near his highest possible level. In other words, endeavor to develop to a marketable extent any latent ability he may possess.

Rehabilitation. — Various factors create an inferiority complex which must be overcome if the subject is to be economically anything but a liability. Failure in school life and failure in industry have been followed by failure in society. Our subject rarely undertakes anything worth while, be it ever so simple, without expectation of failure from the very beginning. To rehabilitate him he must be trained sufficiently well in some operation within his scope to enable him to compete with his neighbor and produce a result that he himself can respect. Until this is accomplished he is beaten before he starts, and has absolutely no respect for his own ability, even though he may loudly proclaim his merits.

In addition to this a kindly but strict system of discipline should be maintained. This discipline must, in an intensive way, make up for the utter lack of such training in his formative and more impressionable years. It must be evenly exercised and even minor faults should be noticed and corrected.

If these men can be trained to react instinctively, in a social manner, it will go far towards their readjustment. The way to do this is instill the thought that obedience brings comfort and disobedience the reverse. Obedience gains and disobedience restricts privilege. This is the same rule that applies in society. Society grants privileges in direct proportion to our ability to use them in a social manner. Should we construe privilege or liberty to mean license, we find ourselves in trouble.

These men fail in civil life because of its complexities. In an institution where every necessity is provided for them and no great measure of responsibility is even expected they may adjust and function fairly well.

For this reason parole preparation should comprehend gradual increase in self-supervision, including as a final step in preparation a period in a colony at a distance from the institution. Careful observation of the reaction of the individual to the increased freedom and responsibility should make for intelligent selection of parole material and this for a minimum of failures among those returned to society.

Accordingly, parole environment should be selected intelligently, keeping in mind not only our subject's limitations, but his special abilities. Kindly, helpful, intelligent supervision on parole should be afforded.

Summary.—Careful analysis of each case—removal of physical handicaps—instruction in productive occupation to maximum of indicated ability—cultivation of social habits by an even enforcement of discipline—careful placement and judicious supervision on parole.

NEW LIGHTS ON CRIME AND DELINQUENCY

By Sheldon Glueck

Instructor, Department of Social Ethics, Harvard University

Preventive Work.—The outstanding project in the prevention of delinquency is the Commonwealth Fund Program. Proceeding upon the assumption that the roots of delinquency can in most cases be traced to the individual and social maladjustments of early childhood, the Joint Committee on Methods of Preventing Delinquency of the Commonwealth Fund launched one of the most practicable projects ever undertaken in coping with criminality. The Italian criminologists of the 19th century busied themselves largely with the study of the confirmed criminal and with broad programs of social reform as related to the prevention of crime. The American workers of the Commonwealth Fund turned to fundamental problems which in part are capable of solution even under the existing social-economic régime. Psychiatric clinics for the study and treatment of "predelinquents," "problem children," maladjusted youth in general have been set up in a few places.

Case Records.—The first and most important of these, the Bureau of Children's Guidance of New York, was established several years ago under the direction of Dr. Bernard Glueck. Considerable useful work has already been done in the study and treatment of problem children. But perhaps the most important work was the publication of a number of case records showing the mechanisms of youthful conflict and maladjustment at work and throwing much light on the technique of treatment of these problems. These records have become invaluable teaching material in courses in sociology and social work, and have set a high standard of investigation, analysis and treatment. As compared with the statistical study of individual "criminal traits" extracted from the living, acting personality of the delinquent, the studies of the Commonwealth Fund and similar studies shed considerable light on the intricate mechanisms of maladjustment and delinquency in the individual case.

Clinical Work.—The clinics of the Commonwealth Fund, together with the excellent clinics for the more general problems of mental hygiene established at various strategic points throughout the country by the National Committee for Mental Hygiene, serve as striking community demonstrations of the value of the immediate practical approach to the problems of delinquency and mental disorder. They have stimulated various cities to finance and establish similar enterprises of their own. Thus the principal aims of these clinics are bringing valuable results in arousing communities to their responsibility both in the causation of delinquency and in the all-important domain of preventive social medicine of which the treatment of pre-delinquency by means of psychiatric clinics is but a branch.

Visiting Teachers.—In addition to the clinical work of the Commonwealth Fund this project has greatly stimulated the visiting teacher movement. When it is remembered that considerably more than half of the time of children during their early school years is spent outside of the school, and that the school is but one source of youthful conflict and maladjustment, the importance of this movement becomes readily apparent. Visiting teachers, trained educationally, socially and psychiatrically, have been established in a number of communities by the Commonwealth Fund. Danger signals of conflict, such as truancy, misbehavior, inability to progress with studies, sex difficulties, etc., are reported to the visiting teachers. They investigate the homes and neighborhoods of the children, have them examined at psychiatric clinics, make contacts with other community agencies, plan programs of individual readjustment, and indirectly obtain much valuable information as a basis for necessary social legislation. By thus impressing upon parents, teachers and citizens generally the important fact that education for life barely begins where formal school learning ends, and that much of the failure, unhappiness, delinquency and dependency of adult life is traceable to neglect of this fundamental truth in childhood, the visiting teacher movement is helping to bring about a much-needed thoughtful attitude toward the problems involved.

Agencies.—Other important agencies of the first rank of scientific achievement in this field, to mention but a few, are the Judge Baker Foundation of Boston, under the able directorship of Dr. William Healy, pioneer in the scientific study of juvenile delinquency, and Dr. Augusta Bronner, and the work of Dr. H. M. Adler, State Criminologist of Illinois and of Dr. Miriam Van Waters, Referee in the Juvenile Court of Los Angeles.

If space permitted, other agencies dealing with "pre-delinquents" in various communities might be mentioned. These include various boys' and girls' clubs, "republics," etc. These sporadic efforts are important in that they reduce the volume of delinquency locally by providing healthy outlets for normal youth. Some of these agencies are more sentimental than scientific. But even they do valuable work in providing playgrounds, recreation rooms, dance halls, etc., frequently under trained supervision, and in attempting sympathetically to understand and deal with the problems of puberty and adolescence. In this way they successfully compete, in many instances, with commercialized pool-rooms, dance-halls and other breeding-beds of vice and delinquency.

Legal Machinery for Coping with Crime.—Turning now to the important work which has been accomplished in the study of society's legal machinery for coping with the problem of criminality, the great Cleveland Foundation Survey of the Administration of Criminal Justice takes the first rank. Other surveys of different phases of this problem have been made at various times; the Cleveland investigation, however, is the first to have covered the entire legal process as a unit,—from the point of arrest of the offender to the point of his parole and return to the community,—and this in its social setting. This epoch-making project was undertaken by Dean Roscoe Pound and Professor Felix Frankfurter of Harvard Law School with the collaboration of experts in the various departments of the undertaking. Its scope and thoroughness are partially indicated by the roster of problems studied and names of investigators: Police Administration was studied by Raymond B. Fosdick, Prosecution by Alfred Bettman assisted by Howard F. Burns, the Criminal Courts by Reginald Heber Smith and Herbert B. Ehrmann, Correctional and Penal Treatment by Burdette G. Lewis, Medical Science and Criminal Justice by Dr. Herman M. Adler, Legal Education by Albert M. Kales, Newspapers and Criminal Justice by M. K. Wisehart. The report contains Dean Pound's philosophical analysis of the deep-seated causes of the break-down of criminal justice in the American city, an analysis which, with slight modifications, is applicable to every large city in the country, and which should therefore form a point of departure for any thorough-going reconstruction of criminal law and procedure. The complete report, a veritable quarry of useful information on all phases of the legal treatment of criminality, has had wide circulation both here and abroad and has already given impetus to many reforms not only in Cleveland but in other parts of the country. A permanent commission of representatives of leading civic organizations has been established and keeps continually in touch with the administration of criminal justice in Cleveland. It has already brought about great improvement in the system of record-keeping (an indispensable preliminary task in controlling the administration of justice), has raised the morale of the criminal bench, and stimulated and kept active public interest in this perhaps most important single problem in modern city life. Somewhat similar in scope and function is the Chicago Crime Commission.

Criminal Courts. — Deserving of separate mention are the unified criminal court system of Detroit and the New York State project for a ministry of justice. One of the readiest means of escape of the professional criminal, not counting the many afforded by constitutional guarantees designed for a different day, age, and type of criminal, is the dual system of criminal courts existing in most American cities, with its wasteful and dangerous duplication of machinery. So numerous and subtle are the "paths and by-paths" of procedure whereby the professional criminal with the aid of his henchmen, the disreputable bondsman and the shady lawyer, is able to escape the meshes of the law while the inexperienced and socially less dangerous first offender is caught, that the remedy of this one situation alone should materially lessen organized, large-scale, urban criminality.

This seems to have been proved by Detroit's experience. Before April, 1920, that city's criminal tribunals were divided into the usual double system of superior and inferior courts with separate prosecutory and judicial machinery,—a system having little more than historical tradition to support it. After that date there was a marked decrease in the volume of crime as reflected in the statistics. While some of the decrease is attributable to improvements in the police department, the police themselves claim that much of it is due to the unification of the courts, and consequent reduction in the number of appeals, delays, and other technical devices afforded the experienced criminal. Similar unification was recommended for the Cleveland courts, and would doubtless prove of value in most large American cities; for whatever may be society's most important aim in dealing with the offender its legal system must first be designed to give it some assured control over him.

Administration of Justice.—For a number of years American socio-legal scholars, such as Dean Roscoe Pound and Judge Benjamin Cardozo, have been urging the adoption, in the larger states at least, of a ministry of justice,—an instrumentality necessary to round out and articulate existing branches of the government. While stress has been laid in the literature upon the ministry's value to the administration of the law in general, and particularly the civil law, its usefulness in the administration of criminal justice should not be underestimated. This instrumentality is needed to provide for the continuous study of the effectiveness of the law in action as compared to the law in books; for bringing about a system of proper records as a basis of such study and of coördination of effort among the various agencies that deal with the offender; for ascertaining from judges, legal scholars, authoritative writings and such survey reports as that of Cleveland the anachronisms and wastefulness in existing legal institutions; and for bringing the law generally as nearly as is possible and desirable into harmony with the demands of the day and age.

It was largely due to the scholarship, zeal and labor of Judge Cardozo that the nearest approach ever made in this country to this much-needed reform was taken. In 1923, Governor Smith of New York appointed a commission "to investigate defects in the law and its administration." That distinguished commission unanimously adopted the report of Judge Cardozo's sub-committee, of which the principal recommendation was for the establishment of a "permanent law revision commission," very similar to the ministry of justice in its organization and in some of its proposed duties. It provided for a membership of several practicing attorneys and legal scholars to be drawn from the faculties of universities. In this manner the necessary continuous contact between the progressive agencies in the community and the governmental machinery might have been brought about through the intermediary of students of the law. Unfortunately, however, the bill was defeated, although it almost became a law.

Investigating Commission.—Among recent enterprises may be mentioned (1923) a series of sensational articles on the crime situation throughout the country appearing in a popular periodical. At the same time was announced the launching of a "National Crime Commission" apparently well-financed and having on its board of membership a number of men prominent in business and governmental circles. Several committees have been organized and the movement appears to be making considerable headway. It is to be regretted, however, that this eminent body does not as yet seem to attack the problem of criminality in its more important, fundamental implications,—namely, from the points of view of the individual and social causes of delinquency and of the fundamental philosophical inconsistencies underlying our body of criminal law.

This commission might well take a number of pages out of the remarkable report of Professor Enrico Ferri's Italian Commission for the Reform of the Penal Statutes, appointed in 1919, which attacks the problem of criminality not as exclusively a legal one, but as a socio-legal one, and which frankly uproots the traditional metaphysical basis of criminal responsibility and substitutes the scientific basis of the Positive School of Criminology. Indeed, our more enlightened Juvenile courts in this country do likewise. There is no doubt, however, that the National Crime Commission has a great opportunity for useful service both because of the far-reaching geographical extent of its operations and because it has enlisted some of the most respected citizens in the country to serve on its committees.

PREVENTIVE WORK IN DELINQUENCY

By August Vollmer

Chief of Police, Berkeley, California

Methods of Prevention.—A few centuries ago organized society employed rather crude weapons in defending persons against attacks by criminals. The ordeal, combat, and torture failed in their purpose; and within comparatively recent times the imposition of the death penalty for most crimes did not deter criminals from plying their nefarious trade.

As a result of humanitarian endeavors during the past century, the death penalty has been abolished in nearly all cases; better police methods have been introduced, criminal procedure has considerably improved, and prison reforms have been adopted by civilized countries. None of these innovations has diminished the number of criminals, or reduced crime to an appreciable degree, notwithstanding prophecies to the contrary.

Juvenile courts were created for the purpose of saving child offenders from becoming habitual criminals. After functioning for a decade or more, we learn that many of the most desperate criminals came under the benign influence of these tribunals, but continued their criminal careers when they were again turned loose upon society.

Scientific study of juvenile repeaters by eminent criminologists was introduced, and this has been extended in some cities to include all children brought before the court. These are all natural and progressive steps, and each move made contributed to human knowledge, and each step forward suggested a new and better plan for the control of crime.

Police records and the amount of space devoted to crime in the daily press and other periodicals seem to indicate that the present crime-prevention structure is inefficient, and other forces must be brought to bear upon this great social menace, otherwise the civilization of to-day will perish as other civilizations have before it.

Only catching, convicting and sending prisoners to jail for a short or long sentence does not prevent crime any more than treating malarial patients for definite periods prevented malaria. Study of the causes, and removal or destruction of these, is the only safe and sane approach to crime prevention.

Effect of Vital Human Character.—Criminology teaches that the vital organization, consisting of the circulatory, nervous, glandular and musculatory systems, regulate and control instincts, volition, intelligence and temperament. These inherent qualities, interacting with environment, which includes the home, school, church, neighborhood, companions, recreations and occupations, produce mental characteristics designated as dispositions, attitudes, habits, conscience, ideals, virtues, sentiments, likes and dislikes. A defective vital organization produces intellectual, volitional and emotional distortions. These distorted inherent qualities, interacting with environment, cause anomalies of character observable among criminals. Conversely, unwholesome environment is frequently the genesis of vice, ignorance, emotional instability, volitional irregularities, vicious habits, anti-social attitudes and dispositions, blunted conscience and perverted likes and dislikes.

Heredity and Environment.—We must know the part that heredity or environment play in shaping the destinies of those who depart from the paths of rectitude. No amount of welfare work can add one inch to the congenitally deformed arm or leg. A broken limb, however, can be quickly restored to usefulness by medical experts. Hereditary defects cannot be corrected in most cases, whereas the acquired defect may respond to scientific treatment. In dealing with anti-social persons, this lesson must be constantly borne in mind, and energies wisely directed, and not wasted in attempting the impossible. Human beings are highly complicated pieces of machinery and no unskilled person dealing with delinquents should attempt to determine whether he is confronted with a problem of defective heredity, environment, or both. Scientists are better informed regarding these difficult questions, and are rapidly improving their technique to segregate the reclaimable and worth-while from the socially malformed. Family, school, and developmental histories, field work by social workers, mental intelligence, volitional and temperamental tests, physical examinations of every conceivable character, X-rays, and other laboratory investigations are the professional tools of the worker in the field of behavior to-day, and are his aids in arriving at a proper diagnosis. Dealing with facts and not fancies, the expert is able to direct the forces organized to render welfare service, and thus save them from the pitfalls of the past and help to make more effective their unselfish and wonderfully humane work.

Individual Study.—Criminologists emphasize the importance of intensively studying individual offenders, and noting and evaluating every factor which may directly or indirectly contribute to delinquency. Merely diagnosing the delinquent as feebleminded does not satisfy them for the reason that numerous persons of feeble intellect manage to get along well outside of institutions, and are not criminally inclined. Other contributories, such for example as volitional defects, emotional instabilities, and environmental factors, must be carefully inquired into, and the part that each plays carefully weighed.

Healy, Ball, Hoag, Glueck, and others have shown in their scientific contributions that there is a close relationship between misconduct and physical and mental handicaps. Further, that the delinquents as a group are markedly inferior to others. They do not contend that all delinquents are mentally or physically inferior, but prove from their investigations that as a group they are below average; manifestly, the sooner their defects are discovered, the better it is for the community, the family, and the offenders.

Removing Defects.—Data should also be acquired showing the results of different types of treatment used to improve or remove conditions conducive to conduct disorders. Experience has shown that correcting physical or mental defects in some cases, and improving environment in others, has completely changed the personality of many juvenile and adult offenders. An incorrigible girl became quite tractable when her adenoids were removed. Criminal impulses of an adult disappeared under antiluetic treatment. Sex irregularity ceased in one case when a boy of superior intelligence was taken out of the fourth grade and coached to enter the sixth grade the following year. A juvenile repeater, always considered a hopeless case, developed into a responsible citizen when removed from the influence of a neurotic father. There are many thousands of cases where social adjustments sufficed to change the behavior for the better of persons once considered habitual criminals.

Rehabilitation of a family or individual is attended with much danger, and care must be exercised lest through unscientific methods we reap a harvest of degenerates of the Jukes type. Perpetuating the stock of insane, epileptic, feeble-minded, degenerate, delinquent or dependent persons is positively dangerous to organized society. Moreover, it is cruel to the children of such defectives. We hold these degenerate offspring of unfit persons accountable for their acts, punish them for transgressions by imprisonment or hanging, and institutionalize or ostracize them for physical, mental or moral deficiencies. Teased, criticized, or condemned for their incapacities, deprived of their natural right to enjoy life, bodies warped by malnutrition, and liberties curtailed, they lead a miserable existence from infancy until death saves them from further pain.

Punitive and Welfare Agencies.—Considering the enormous variety of factors which contribute to delinquency, it is not surprising to learn that law-enforcement officials were unable to successfully cope with the situation, or that institutions created for the purpose of raising moral standards have not stemmed the tide of degeneracy, prostitution and crime. Without their labors, however, social conditions might have become intolerable ere this.

The welfare agencies, school, health, recreational and police departments of a progressive city, recently combined forces with a view of building up the mental, physical and moral health of school children, hoping thereby to lessen moral obliquity. Similar organized agencies in many communities are willing and able to do this great work if encouraged and supported, providing their activities are properly guided and coördinated.

To direct energies into proper channels and make more effective the constructive work that welfare agencies are now doing, it is necessary that authority be conferred upon some official or group of officials, qualified by experience and training, who can obtain their support in a study and treatment of crime and its causes. Police Departments are charged with the responsibility of preventing crime; therefore it is fitting that police officials should assume this task, providing they have the proper training.

Recently Crime Prevention Divisions have been created in a few departments; and trained social workers, men and women, have been encouraged to enter this branch of the service. Their work is broad and constructive, and another step upward in the fight to minimize dependency and delinquency. Providing splendidly equipped hospitals and institutions for the socially warped indicates a high civilization, but it is more humane and much better business sense to go farther up the stream, and control, or eliminate the source of pollution, and thus remove in a scientific manner, demoralizing influences which create social and political ills and threatens the degeneration of modern civilization.

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Professor of Sociology, University of Wisconsin

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DIVISION XXIII
WOMEN'S WORK AND PROGRESS

WOMEN'S ORGANIZATIONS

By Emma H. de Zouche
Writer on Feminist and Political Topics

Origins.—The movement for women's clubs is more than half a century old. It started with Sorosis, founded in 1868 in New York City by a small group of women with Alice Cary the poetess as president. In 1889, on the occasion of the club's twenty-first anniversary, a call was issued to all known women's clubs in the country—ninety-four in number—to send delegates to the celebration. Sixty-three delegates responded, and federated in New York. Charlotte Emerson Brown, the niece of Ralph Waldo Emerson, was the first president. Succeeding presidents were Ellen M. Henrotin of Illinois; Rebecca Douglas Lowe of Georgia; Dimies T. S. Denison, of New York; Sarah S. Platt Decker of Colorado; Eva Perry Moore of Missouri; Mrs. Percy V. Pennybacker of Texas; Mrs. Josiah Evans Cowles of California; and Mrs. Thomas G. Winter of Minnesota. Mrs. Winter was appointed by President Harding to the Advisory Council of the Arms Conference at Washington, with Mrs. Eleanor Franklin Egan of Washington and New York, the writer, now dead, Mrs. Charles Edson of California, and Mrs. Charles Sumner Bird of Massachusetts, all of whom, while representing widely differing interests, were included in federated clubs.

The General Federation of Women's Clubs, Mrs. John Dickinson Sherman of Colorado, president, National Headquarters, 1734 N street, N.W., Washington, D. C., with 2,500,000 members, is today the largest individual organization of club women, and the most far-reaching through its diverse interests, in the United States. It was the first great women's club combination in this, the most organized country in the world.

The General Federation includes 50 state Federations, 5,384 individual clubs, 23 affiliated organizations, and 31 foreign clubs, making a total of 13,488 clubs. There is a movement for universal club membership in the Federation.

The purposes of the organization include neither politics nor religion, and are anti-sectarian, the delegates uniting on "such public measures as club women can agree upon, believing them above party and dealing with them as common well-being."

The Federation is focusing its full force on the Department of the American Home. Demonstrating agents are sent into the rural districts to teach the labor-saving re-arrangement of homes, the lessening of necessary steps in housework and preparation of foods, interior decoration, and other essentials to promote comfort and eliminate drudgery. The six departments, Education, American Home, Citizenship, Legislation, Foreign Affairs, and Conservation of Natural Resources, broadly cover the Federation's program.

The National Council of Women, made up of National organizations, including the General Federation of Women's Clubs, represent ten million women. Dr. Valeria Parker of New York is the President. The National Council of Women is a member of the International Council of Women, with headquarters in London, England, and with the Countess of Aberdeen, President.

The Women's Christian Temperance Union, 750,000 members, founded in 1874, elected Mrs. Ella A. Boole president at the convention in Detroit November, 1925, to succeed Miss Anna A. Gordon, who is now president of the World's Women's Christian Temperance Union. Only two women have filled the executive chair of the National organization since the death of its famous leader, Frances E. Willard, in 1898, Mrs. Lillian Stevens of Maine, and Anna A. Gordon of Massachusetts, who for twenty-one years had been Miss Willard's private secretary. The day Miss Gordon retired from the National was the forty-second anniversary of her appearance in the organization. On that occasion in the same city, Detroit, she had filled the humble position of page at an early convention. Mrs. Boole was formerly New York State president of the W. C. T. U.

The Young Women's Christian Association of the United States (National Board, 600 Lexington avenue, New York City), president Mrs. Robert E. Speer; Mrs. John French, Chairman of Executive Committee; Miss Catherine Lambert, Secretary, participates in the work of the World's Young Women's Christian Associations in establishing, developing and unifying Young Women's Christian Associations in the United States, advancing the physical, social, intellectual, moral and spiritual interests of young women.

The total membership in the National organization exceeds 556,000, of whom 110,000 are girls between the ages of 12 and 15, known as the Girl Reserves. There are regional offices in Chicago, Denver, and San Francisco; local associations are enumerated as follows: 1,000 centers and branches in 255 cities; 466 centers in 105 rural districts; 144 associations in towns; and 680 student associations.

The general Association program includes classes in bible and mission study, physical training, commercial training, language study (French, Italian, Spanish, English), domestic arts and sciences, vocational training, dramatics, trained attendance, business and parliamentary law, and current topics. Special classes are conducted in the management of cafeterias, boarding residences, housekeeping apartments, room-registries, summer camps, transient and residential hotels, vacation homes, employment bureaus, health centers, home-investigation bureaus. The needs of the community determine what activities shall be undertaken by each association.

Industrial workers, business and professional women, girls and women of foreign birth, students and younger girls are included in the membership, colored and Indian girls being among those trained. In 1925 the National Board conducted 36 ten-day summer conferences for girls in 14 states, with a total attendance of 9,385. It maintains a National Training School, 135 East 52nd street, New York, which is primarily for the training of leadership with the Y. W. C. A., and while its curriculum is built upon this basis, it also attracts women preparing for social work outside of the organization.

The National Board also maintains work in the foreign field. In November, 1925, it had 107 secretaries working in 11 countries in the Baltic States, Near East, the Orient, and South America. The official organ of the National Board is the "Woman's Press," a monthly publication.

The Young Women's Hebrew Association, founded in 1903, headquarters 31 West 110th street, New York City, 6,000 members; Executive Director, Mrs. Ray F. Schwartz; secretary, Mrs. Samuel I. Hyman. In its welfare program it largely follows that of the Y. W. C. A.

The National Council of Jewish Women, 50,000 members; headquarters, 305 West 98th street, New York City; president, Miss Rose Brenner; secretary, Mrs. Estelle M. Sternberger. The New York section of this organization, numbering 6,000, has offices at 59 West 92nd street. Mrs. Edward Josephy, president; secretary, Miss Sara Schottenfels. The program is educational and philanthropic.

The Council of Women for Home Missions, 156 Fifth avenue, New York, membership 5,000,000; president, Mrs. John Ferguson; executive secretary, Miss F. E. Quinlan.

Woman's Home Mission Society, founded in 1880, headquarters 420 Plum street, Cincinnati, Ohio; membership, 485,000; president, Mrs. Wilbur P. Thirkield; secretary, Miss May Leonard Woodruff. This and the preceding organization are concerned in relief work, prison reform, and law enforcement, as well as the regular program designated in mission work.

Women's Trade Union League, of New York City, 247 Lexington avenue; membership 500 individual, 780,000 affiliated. President, Rose Scheiderman; secretary, Mabel Leslie.

National Women's Trade Union League, 104 East 9th street, New York. President, Mrs. Maud Swartz; membership, 400 individual, and large union membership affiliated through the Federation of Labor. Both these organizations work through all channels for the betterment of women in industry.

National Council of Catholic Women, founded 1920, 1312 Massachusetts avenue, Washington, D. C. Membership, 15,000. President, Mrs. Michael Gavin of New York; secretary, Miss Agnes G. Regan. It promotes educational and welfare work for women through local organizations, and supports appropriate legislation.

State Organizations.—All the large national organizations are represented by state and some city organizations. The State Federation of Women's Clubs of New York has a membership of 400,000; Mrs. Charles Dickinson, of Binghamton, is the president. The New York City Federation of Women's Clubs, with a membership of more than 100,000, has headquarters at the Hotel Astor, New York City. Mrs. William D. Sporborg is president. Both organizations have an intensive program covering club and civic interests, literary, philanthropic, home-making, legislative. The New York City Federation maintains a business women's hotel.

Social organizations in many large cities include Junior Leagues and other groups of young women which, since the War, have developed increased phases of philanthropic and civic interests. The Colony Club of New York City, and the Cosmopolitan Club of New York City are examples of groups of notable and wealthy women and magnificent clubhouses.

Patriotic societies of women include not only women representing native states in organizations, but the descendants of war heroes of various periods. The Daughters of the American Revolution, with a membership of 202,074, president general, Mrs. Anthony Wayne Cook; secretary, Mrs. Franklin T. Shumway; headquarters Memorial Continental Hall, Washington, takes the lead in numbers. Continental Hall during the War sheltered many historic gatherings, and certain sessions of the Arms Conference were held there. The General Society, Daughters of the Revolution, founded 1891, headquarters 15 West 37th street, New York City; membership, 3,000; president general, Mrs. Charles A. Latham.

Women's City Clubs.—Since the granting of the suffrage to women, Women's City Clubs have been organized in many of the large cities of the United States.

Many wartime organizations carry on in peace in welfare and philanthropic work.

Colonial Dames of America, founded 1890; headquarters, 65 Park avenue, New York City; Mrs. Henry P. Loomis, president; Miss Anne A. Sands, secretary. Membership, 775.

National Society Colonial Dames of America, founded 1892. Headquarters, Washington, D. C.; membership, 9,000; Mrs. Joseph R. Lamar, president; Mrs. Barrett Wendell, secretary.

Both organizations keep alive the historical traditions of their country and stimulate patriotism.

American Association of University Women, founded 1882; 1634 I street, N.W., Washington, D. C., membership 20,000; president, Dr. Aurelia H. Reinhardt; executive secretary, Dr. Mina Kerr. This, like the scattering organizations of university women throughout the United States, is organized for the benefit of the college women in all walks of life. The Women's City Club of New York, No. 22 Park avenue; Mrs. H. Edward Dreier, president; membership, 2,800, is affiliated with a chain of similar clubs across the continent.

WOMEN IN POLITICS

By Emma H. de Zouche

Writer on Feminist and Political Topics

Arrival of Women.—Women at the polls were coincident with the first broadcasting of radio in the United States. These two great innovations in our national life made their début together at the presidential election of 1920.

The Socialists, the Prohibitionists, the Labor Party, and other minor parties found the influx of women no embarrassment. They had always belonged to those parties. But the Republicans and Democrats who had deprecated the inclusion of a feminine electorate until party leaders capitulated to the inevitable, accepted them on an equal footing with many hesitations. In name, but not in authority, some women held posts co-equal with men in party government; and rebellions have been frequent. But as the co-partnership grows older, there is evidence of closer harmony and genuine coöperation.

National League of Women Voters.—This independent organization was conceived to be a threat of a woman's party. The Suffragists under the leadership of Mrs. Carrie Chapman Catt, to tighten up their machinery in the last years of the struggle for the vote, followed the lines of political district organization. From them was derived the new organization which was not completed until after woman's enfranchisement. It is a non-partisan—or all-partisan, as they prefer to call it —organization, to educate women as citizens, teach them the mechanics of voting, and to get out the vote. One of the functions of the League is an examination into the policies and promises of candidates on local or national issues. A questionnaire is sent to the candidates of all parties named on the Ballot, and their replies, maintained as a record, are open to the public at the headquarters of the League of Women Voters, in city, state or county.

Open forums, at which the candidates of all parties are invited to address the public and meet their opponents, are the campaign contribution of the League of Women Voters. Men leaders of the major parties, and some of the candidates themselves, have opposed these methods as an intrusion on the rights of candidates; but the League continues this form of political information, in forty-four states, and three-fourths of the Congressional districts of the country. In many districts local Leagues print and distribute thousands of these records among the women of the electorate.

The League's citizenship schools have become a recognized system of political education. Two national citizenship schools and eighty-six State schools were reported in 1924. And the Universities of Illinois and Minnesota are among the later institutions which extend coöperation.

Non-Partisan Information. — The League of Women Voters urges all women to join the parties of their choice, but at the same time offers a middle-of-the-road organization where persons of widely differing political views may together work out common problems. Child welfare bills, and bills removing legal discriminations against women are supported in these States. Support of federal bills, in keeping with the League's program, such as the Sheppard-Towner Act (maternity legislation), and the independent citizenship of married women (both of which are now law) is authorized by the League convention. A Board of Directors, consisting of six officers and seven regional directors, conduct the work of the League. Miss Belle Sherwin is the National President, and the headquarters is in Washington.

An important Department of the work of the League, expanded from a wartime committee, is the Department of International Coöperation to Prevent War, in charge of Miss Ruth Morgan of New York, Third Vice-President. This will play a part in World Court discussions. The League's Congressional watcher on the World Court progress during the session will be Mrs. Maud Wood Park, National President for four years, and described by legislators at the Capitol as "the lady who made lobbying respectable."

National Republican Women's Association.—Republican women claim an organization thirty-two years in advance of the ballot, which was established in 1888 by Mrs. J. Ellen Foster, then rising into fame as a platform speaker for the Party, and a group of women of Congressional circles. Mrs. Foster organized branches in many states while on speaking tours about the country, and in Washington edited the organ, known as *The Home and The Flag.* Miss Helen Varick Boswell, now Associate Leader of New York county, as organizer for Mrs. Foster in the first McKinley campaign, completed a chain of these Associations which supported Republican candidates during political seasons, and in the interim became political study clubs. In the second McKinley campaign, the Republican Women's Association of New York, under Miss Boswell, and Mrs. Clarence Burns, made a house-to-house canvass of the East Side tenement house district, a Tammany stronghold—a feat of no little daring in those days—which attracted the widest attention throughout the country. With the coming of the ballot, the National Republican Women's Association dissolved, members joining the Party organization.

Officials of the Association.—The first chairman of the Republican Women's National Executive Committee was Mrs. Medill McCormick of Illinois, daughter of the late Senator Mark Hanna and wife of Senator McCormick, since dead. First appointed vice-chairman in charge of Organization was Mary Garrett Hay of New York. Mrs. Harriet Taylor Upton of Ohio later replaced Mrs. McCormick and conducted the Republican women through the Harding administration. She is succeeded by Mrs. Alvin Herts of Kentucky. Mrs. Arthur L. Livermore was the first chairman of the Republican Women's State Executive Committee of New York. She founded the Women's National Republican Club and was succeeded in its presidency by Mrs. Charles H. Sabin.

Miss Sarah Schuyler Butler, daughter of Nicholas Murray Butler, President of Columbia University, is the chairman of the New York State Republican Women's Executive Committee. The Committee is represented by The Woman Republican, a weekly political issue, with Grace Sawyer, editor.

The clubhouse in New York is notable for its old colonial furniture. Twenty-six hundred women from all states in the Union comprise the membership. Mrs. Sabin, whose husband is a financier, is a member of the National Republican Executive Committee, and is National Republican Committee woman for New York. She also sits on the State Committee, and has been recently appointed to the New York State Reorganization Commission of which Charles Evans Hughes is the Chairman.

Democratic Women's Organization.—Before the enfranchisement, Democratic women, as such, developed organizations (with a few noteworthy exceptions) only during campaign times for the support of special candidates. Since the winning of the ballot they have been active in the Party and have been allotted positions of importance. Mrs. George Bass of Illinois was the first chairman of the Democratic National Committee in Charge of the Women Voters. She ended her service after the Cox campaign of 1920. She was followed by Mrs. Emily Newell Blair of Missouri who directed the women's activities through the campaign of 1924 for John W. Davis and the National ticket, and is still in office. Mrs. Blair achieved considerable success with schools of Democracy in many states to instruct women and first voters in party principles and the use of the ballot. Miss Elisabeth Marbury, now National Committeewoman for New York, and Miss Harriet May Mills of Syracuse, N. Y., were two of the Big Four delegates-at-large from New York to the National Convention at San Francisco that nominated Cox. The Women's National Democratic Club, Inc., with headquarters at the Hotel Wellington, New York, with Mrs. Lillian R. Sire as its president, was formed in 1917. Two years ago the National Democratic Women's Club, a second organization, was established in Washington. Mrs. J. Borden Harriman is its president and among the activities at the clubhouse is the entertainment of women Democrats who are national figures.

Officials in the Democratic Organization.—Mrs. Daniel O'Day is the Associate State Chairman for New York and likewise a member of the State Charities Board. Her coworker, and Vice-Chairman, Mrs. Franklin D. Roosevelt, wife of the former Assistant Secretary of the Navy who was nominated for Vice-President of the United States on the Cox ticket, is editor of the state organ, The Women's Democratic News. The State Finance Committee includes Mrs. Charles Dana Gibson, the sister, and Mrs. Ronald Tree, the niece, of Lady Astor who, an American woman herself, set the example of wives following their husbands' footsteps, when on Lord Astor's accession to the title she entered the House of Commons as the first woman member of Parliament. Mrs. Bainbridge Colby, the wife of the Secretary of State under President Wilson; Mrs. James W. Gerard, wife of the former ambassador to Germany; Mrs. Edith P. Morgan, sister of the late Herbert Parsons, Republican Congressman; Mrs. Norman de R. Whitehouse who fulfilled a wartime mission in Switzerland for the Government, and Mrs. Frank L. Polk, wife of the Acting Secretary of State during the Wilson Administration, are among the members of this Democratic Committee.

The Woman's Party.—The Woman's Party (national) with headquarters on Capitol Hill, Washington, has as president Mrs. O. H. P. Belmont, and secretary, Anita Pollitzer. This organization founded by Miss Alice Paul and Miss Lucy Burns, became famous for its militant methods during the fight for the vote. They picketed the White House and were arrested innumerable times, some serving workhouse sentences. In politics they are independents, supporting candidates who advocate their measures, and campaigning vigorously against their opponents. Their principal activity now is known as the Blanket Legislation Bill, to remove by Federal action all discrimination against women in existing laws. This is opposed by the women of the parties who wish to accomplish the transition by state action. Miss Paul is the Legislative Chairman.

The Anti-Suffragists, as organized opposition to the woman's vote, dissolved after enfranchisement, and went into the parties, with the exception of a small group of irreconcilables.

Women in Office.—Women voters of the United States, just five years after their enfranchisement, find themselves, in the year 1925, enjoying the rights of full citizenship, with two women governors in office, three women in Congress, and 131 women in state legislatures; with a fair share of women elected officers, and women appointees in more or less important governmental posts, where they are proving themselves; with two women in the foreign service of the country; and with at least one national policy which appears to be common to the sex, regardless of party bias—peace.

Attitude on the World Court.—With Locarno as the immediate background, practically the entire force of the women of the republic is focussing on the World Court. The majority of the bitter-enders in the Wilson following, who have hitherto turned a deaf ear to all but our entry into the League of Nations, while still maintaining their own organizations, have fallen into the ranks. Great organizations of women, whose platforms eschew politics, like the General Federation of Women's Clubs with two million, five hundred thousand members, have thrown their strength to the endorsement of the project; and the demonstration of the women at the Capital when Congress opens the discussion December 17, and during the session, will be a full and free expression.

Women Governors.—The election of the two governors—Governor Nellie G. Ross of Wyoming, and Governor Miriam A. Ferguson of Texas, each a Democrat,—curiously emphasizes the surprising number of wives and widows, even daughters, who, since women's entry into the political arena, have been promoted to the man's job in public office when death or disability removes him. Governor Ross was the widow of the man she succeeded, his co-worker while in office, and pledged herself to carry out his program. Governor Ferguson fought for the place of a husband discredited, to vindicate him, and with his help has furnished the country with chapters of exciting drama throughout the first year of her administration. Charges of graft and excessive use of the pardoning power, with threat of impeachment by the legislature, have been events in the controversy. The hypnotic slogan, "Me for Ma!" is regarded as a responsible factor in the success of the Governor's campaign.

Women in Congress.—Of the three women in Congress, the two Republicans, Mrs. John Jacob Rogers of Massachusetts, and Mrs. Julius Kahn, of California, are widows whose husbands died in service. The third, Mrs. Mary Norton of New Jersey, a Democrat, was without the influence of inheritance in her campaign.

In the 67th Congress, Mrs. Winifred Mason Huck of Illinois, a Republican, was elected to fill out the unexpired term of her father, William E. Mason, representative-at-large. In the 68th Congress, Mrs. John F. Nolan of California, Republican, was elected to fill out the unexpired term of her husband who died in office. Miss Jeannette Rankin of Montana, Republican, was a Representative-at-large in the 65th Congress, the first woman to serve. Miss Alice M. Robertson, of Oklahoma, Republican, was elected to the 67th Congress. By appointment of the Governor of Georgia Mrs. Rebecca L. Felton, 87 years old, served one day in the United States Senate, succeeding Senator Tom Watson (November 21, 1922).

Women in Federal Service.—Mrs. Mabel Walker Willebrandt of California, Assistant Attorney General, widely known for work in the Prohibition violations; Miss Grace Abbott, Director of the Children's Bureau, where she succeeded Miss Julia Lathrop; Miss Jessie Dell, of Georgia, who has replaced the late Helen H. Gardner, the first woman appointed on the federal Civil Service Commission, placed in office by President Harding, are in the forefront of the country's service, shoulder to shoulder with men. Miss Dell had served the Government for twenty-five years, beginning as a clerk in the War Department, and working her way up. In 1919 she was commissioned by the Quartermaster to take charge of the Information Bureau of the Graves Registration, in Paris. A source of peculiar gratification to the women of the country is the accrediting of two of their sex to the foreign service of the United States, which now comprehends diplomatic and consular appointments. In this department of government the bars had been rigidly maintained against feminine invasion, though women had been accepted for training, and qualified for such posts. Miss Lucille Atcherson of Ohio, the first woman on the diplomatic roster, has been named Third Secretary to the Legation at Berne. She had waited three years for the honor. Miss Pattie Field, a Radcliffe graduate, now assistant consul at Amsterdam, Holland, was drafted four months after completing her course in the Foreign Service School, where she was trained with eighteen young men.

Another innovation at the national Capital which bespeaks the merit system is the appointment of Miss Mildred Reeves as secretary to the newly elected Speaker of the House, Nicholas M. Longworth. This is the first time a woman has served in that capacity. Miss Reeves had been for several years the secretary of Mr. Longworth while he was floor leader for his party in the House of Representatives, and was therefore a logical candidate.

Women in New York Service.—New York created a sensation by electing a Republican woman, Mrs. Florence E. S. Knapp, Secretary of State at the election which returned the Democratic Governor, Al Smith, for a third term. New York City was no less spectacular in electing to the Board of Aldermen, famous for its wordy fights, another Republican woman, Mrs. John T. Pratt, the wife of a banker, who will take her seat as a pioneer woman alderman with a remarkable political experience behind her. Mrs. Pratt came politically into prominence during the Harding campaign when, as vice-chairman of the Finance (Ways and Means) Committee of the Republican National Committee, her skill and vigilance rolled up unusual returns for her party. In this undertaking she traveled from one end of the country to the other. When Republican victory was assured she worked as a henchman in her assembly district to study political organization from the smallest unit. During a revolt in the district, the Fifteenth, known as the "silk stocking" because of its personnel, she threw in her lot with the regulars, became Associate Leader of the District, and in the later race for Alderman defeated James A. O'Gorman, Jr., son of Former United States Senator O'Gorman.

WOMEN IN PUBLIC LIFE

By Emma H. de Zouche

Writer on Feminist and Political Topics

and

Jennie Loitman Barron

Counsellor at Law, Boston

NATIONAL LEGISLATIVE SERVICE

United States Congress.—Woman has served in Congress since the adoption of the nineteenth amendment—one in the Senate and seven in the House, as follows:

Mrs. Rebecca Latimer Felton was appointed senator from Georgia at 87 years of age, by Governor Thomas W. Hardwick, to fill the unexpired term of United States Senator Thomas E. Watson. On November 7, 1922, Walter F. George was elected Senator at the polls, but out of courtesy, he delayed his appearance at the opening session of Congress one day, in order to allow Mrs. Felton to be sworn in and take her seat. Mrs. Felton made one brief address during her term. She appeared in the Senate on November 21, 1922, and served to the end of her term, being 22 hours and 25 minutes. Miss Jeannette Rankin (Montana), Miss Alice Robertson (Oklahoma), Mrs. John F. Nolan (California) to succeed her husband, deceased, and then to a term by election.

Mrs. Winifred Mason Huck (Illinois) to succeed her father, deceased.

Mrs. Florence Prag Kahn (California) to succeed her husband, deceased, now in Congress.

Mrs. Edith Nourse Rogers (Mass.) to succeed her husband, deceased, now in Congress.

Mary T. Morton (New Jersey), now in Congress.

In the East and South, namely, New York and Kentucky, respectively, a woman was elected Secretary of State in 1925.

STATE LEGISLATIVE SERVICE

First Woman Speaker.—For the first time in its history, on February 12, 1924, the speaker's chair in the New Jersey House of Assembly was occupied by a woman, Marguerita Lost. In 1925 a woman Register of New York County was elected to the highest salaried public office a woman has ever held in this country, at $12,000 a year.

It has been estimated that in the elections in 1924 ten women were elected to the State Senates, and 128 to the lower houses of the State Legislatures. (These figures are only approximate, since it was impossible, in some instances, to obtain accurate data at the time this article was written.)

Women in the State Legislatures.—The following are the women members of the various State legislatures so far as obtainable.

(R stands for Republican. D for Democrat. The total number is 132.)

Arkansas
Erle Chambers, D.—(lower house).
Mrs. Sidney J. Hunt, D.
Mrs. Elizabeth H. Thompson, D.

California
Cora M. Woodbridge—(lower house).
Anna L. Saylor.
Esto B. Broughton.
Grace S. Dorris.
Eleanor Miller.

Colorado
Minnie Love—(lower house).
Martha Long.

Connecticut
Alice P. Merritt—(upper house).
Marjorie Cheney, R.—(lower house).
Corinne R. Alsop, R.
Mary B. Weaver, R.
Helen A. Green, R.
Edith Raymond, R.
Clarissa Nevius, R.
Helen E. Lewis, R.
Annie E. Vinton, R.
Mrs. Maud Woodward, R.
Mary M. Hooker, R.
Edna C. Fenniman, R.
Hanna D. Townsend, R.
Elizabeth W. Coe, R.
Julia Emery, R.
Sarah B. Crawford, R.
Ethel M. Ryan, R.

Delaware
Mrs. Florence M. Hanby, R.—(lower house).

Georgia
Bessie Kempton, D.—(lower house).
Mrs. Viola Napier, D.

Idaho
Anna Hanson, R.—(upper house).

Illinois
Mrs. Florence F. Borer, R.—(upper house).
Mrs. Lottie Holman O'Neill, R.—(lower house).
Mrs. Catherine F. Goode, R.
Mrs. Rena Elrod, R.

Indiana
Antoinette C. Haggenwald, R.—(lower house).
Elizabeth H. Daugherty, R.

Kansas
Lavonia N. Donica, R.—(lower house).

Maine
Mrs. Catherine C. Allen, R.—(lower house).

Massachusetts
M. Sylvia Donaldson, R.—(lower house).
Mrs. Harriet R. Hart, R.

Michigan
Mrs. Cora R. Anderson, R.—(lower house).

Minnesota
Mrs. Mabeth H. Paige—(lower house).
Hanna Kempfer.

Mississippi
Miss Beele Kearney—(upper house).
Mrs. Nellie N. Somerville—(lower house).

Missouri
Emma Knell, R.—(lower house).

Montana
Mrs. Catherine C. McCarty—(lower house).

Nebraska
Mrs. Clara C. Humphrey, R.—(lower house).
Sarah T. Muir, R.
Mrs. Mabel A. Gillespie, D.

Nevada
Daisy Allen—(lower house).
Florence Snazey.
Mayme Schwebble.

New Hampshire
Dr. Zatae Straw, R.—(lower house).
Mrs. Arnold S. Yantis, R.
Mrs. Hobart Pillsbury, R.
Mrs. Mary Chapman, R.
Mrs. Imogene V. Emmons, R.
Mrs. Marcia S. Hilton, R.
Mrs. Nellie J. Page, R.
Georgie E. Worcester, R.

Margaret H. Barden, D.
Jennie Fortier, D.
Victoria Langlois, D.
Helen J. Young, D.
Virginia P. Lunderville, D.
Katherine Donahue, D.

New Jersey
May A. Thropp, R.—(lower house).
Mrs. Lila Thompson, R.
Madge I. Ebert, R.
Mae Carty, D.
Mrs. C. Finn, D.

New Mexico
Mrs. R. W. D. Bryan, D.—(lower house).
Mrs. Charlotte A. Palmer, R.
Mrs. Louise N. Coe, D.—(upper house).

New York
Mrs. Rhoda Fox Graves, R.—(lower house).

North Carolina
Julia Alexander, D.—(lower house).

North Dakota
Minnie D. Craig, R.—(lower house).
Laura B. Sanderson, R.

Ohio
Mrs. Nettie B. Longhead, R.—(upper house).
Mrs. Maud C. Waitt, R.
Grace E. Makepeace, R.—(lower house).
Nettie M. Clapp, R.
Mrs. Clara W. Deer, R.
Mrs. Viola D. Romans, R.
Mrs. May Van Wye, R.
Mrs. Florence H. Wells.
Mrs. C. J. Ott, R.
Osa Penny, R.

Oklahoma
Mrs. Lamar Looney, D.—(upper house).
Mrs. Anna Laskey, F. L.—(lower house).
Gladys Whittet, D.
Mrs. Ida L. Robertson, D.

Pennsylvania
Mrs. Flora M. Bare, R.—(upper house).
Lillie H. Pitts, R.—(lower house).
Martha G. Thomas, R.
Helen Grimes, R.
Alice M. Bentley, R.
Maud B. Trescher, R.
Martha M. Pennock, R.

Rhode Island
Isabelle A. O'Neill, D.—(lower house).

South Dakota
Gladys Pule, R.—(lower house).
Celia M. Kelley, R.
Christine Olson, R.
Mrs. Mabel Woodie, D.

Tennessee
Mrs. W. P. Davis, R.—(lower house).
Lizzie Lee Miller, D.

Utah
Mrs. N. A. Dunyon, R.—(lower house).
Mrs. Julia Smart, R.
Mrs. Arthur E. Graham, R.
Mrs. Achsa E. Paxman, R.

Vermont
Mary J. Simpson, R.—(lower house)..
Mrs. Ina R. Niles, R.
Rev. Mabel T. Winch, R.
Mrs. Josie H. Fay, R.
Mrs. Elsie C. Smith, R.
Lillian E. Richardson, R.
Mrs. Annette Dimock, R.
Mrs. Flora B. LaMorder, R.
Mrs. Ada S. Barlow, R.
Mrs. John Taylor, R.
Mrs. Ella B. Seward, R.

Washington
Reba Hurn—(upper house).
Mrs. Belle Reeves, R.—(lower house).
Mrs. Harry John Miller, R.
Mrs. Maude Sweetman, R.

West Virginia
Dr. Harriet B. Jones, R.—(lower house).

Wisconsin
Helen M. Brooks, R.—(lower house).
Mildred Barber, R.
Helen F. Thompson, R.

EXECUTIVE SERVICE

Federal Executive Offices. — A number of women have held and are holding important Federal positions. Among these are Miss Jessie Dell, a member of the National Civil Service Commission, succeeding Mrs. Helen H. Gardner, the first woman to hold this position; Mrs. Bessie Brueggeman, Chairman of the United States Employment Compensation

Commission; Grace Abbott, Chief of the Children's Bureau of the Department of Labor, succeeding Julia Lathrop; Mary Anderson, Chief of the Woman's Bureau of the Department of Labor, where she has thirty assistants, and has the responsibility of the welfare of at least eight million working women; and Dr. Louise Stanley, Chief of the Bureau of Home Economics of the Department of Agriculture.

Other departments of the Federal Government also have women in important positions, such as Assistant United States Attorney General Mrs. Mabel Walker Willebrandt, who succeeded Mrs. Annette Abbott Adams, and who has charge of cases concerned with the enforcement of the 18th, or Prohibition Amendment. In the latter part of 1925 there were at least nine women acting as Assistant United States Attorneys.

The first woman to occupy a position in our foreign service was Miss Lucille Atcherson, who was appointed third Secretary of the Legation at Berne, Switzerland, and in October, 1925, a second woman was appointed Vice Consul at Amsterdam. Another branch of the Federal service, headed by a woman, was that of Collector of Internal Revenue of Illinois, a position which was occupied by Mrs. Mabel Reinecke.

State Governors.—Wyoming, which first gave the franchise, was the first state to be governed by a woman governor, Mrs. Nellie T. Ross, who was inaugurated as governor on January 5, 1925. She was elected with a plurality of 7266 votes.

In the same year Mrs. Miriam A. Ferguson, wife of former Governor James E. Ferguson, was elected governor of Texas by a plurality of about 75,000. She was inaugurated January 20, 1925.

Other State Offices

- Mrs. Solidad C. Chacon, Secretary of State, in New Mexico.
- Mrs. Florence E. S. Knapp, R., Secretary of State, New York.
- Mrs. Mary C. Bradford, State Superintendent of Public Instruction, Colorado.
- Minnie J. Nielson, State Superintendent of Public Instruction, North Dakota.
- Elizabeth Eckles, State Superintendent of Public Instruction, New Mexico.
- Miss Fannie Herrington, Secretary of State, Delaware.
- Annie Matthews, New York City Register, New York.
- Luella D. Richardson, unanimously elected County Treasurer of Niagara County, New York, by both parties.

Michigan has a woman member of the State Board of Agriculture. Nine states have women superintendents of education. Wisconsin has a woman on the Public Debt Commission; and Philadelphia a woman Commissioner of Public Welfare; Texas a woman on the Citizenship Commission, and other states have women state officials.

City Offices.—In this limited space it is impossible to enumerate the various offices in cities and towns, occupied by women, but it is known that at least two cities have women city managers; many western cities have women mayors; many women have been elected to the City Council boards; Health boards; School Committee boards, and Police and Fire Commissions. Prairie Home, Missouri, has the unique distinction of having its entire board of the City Council, as well as the Mayor, composed of women.

JUDICIAL SERVICE

Judge Florence E. Allen of the Supreme Court of Ohio is the first woman in the United States to attain that honor. Though a Democrat, she was elected irrespective of party, as a shining example that the judiciary is above party consideration. She had served as Assistant County Prosecutor in Cuyohoga County, and as Judge of the Court of Common Pleas of the same county prior to her elevation to the Supreme Bench. She was born in Utah in 1884 and had the practice of law not proved more alluring would have followed a musical career. She was well known as a lecturer and writer on music, a critic both here and abroad. Judge Allen advocates women in the jury box to forward the ends of justice.

Among other women judges are Catherine Sellers of the District of Columbia, the first woman to hold a Federal Judgeship; Mary O'Toole, a judge in the Municipal Court of the District of Columbia; Mrs. Violet Fahnestock, a City Magistrate of Philadelphia; Mary Bartelme of Chicago, Illinois, Judge of the Circuit Court of Cook County; Mary Grossman, a Municipal Court Judge in Cleveland; several women Probate judges in Ohio and Connecticut, and three women appointed by the Governor of Texas to the Supreme Court of that state for special cases only.

EXAMPLES OF UNOFFICIAL PUBLIC SERVICE

A Typical Political Leader.—Mrs. Carrie Chapman Catt of New York, through long service for woman suffrage, nationally and internationally, notably her leadership in the winning of the Nineteenth Amendment and its final ratification, has been called The Emancipator. While the laurels are shared by other women leaders and the suffrage army behind them, Mrs. Catt's relation to the cause gave her influence peculiar weight. She had held no office in the suffrage movement longer than the need seemed to require. An independent in politics, she has held no position under the government. Mrs. Catt was President of the National American Woman Suffrage Association from 1900 to 1903, when she made a world tour organizing the International Woman Suffrage Alliance in twenty-eight nations. It now represents the women of forty-two nations, Turkey the most recent, and Mrs. Catt, its first president, now Honorary President, has been replaced by Mrs. Margaret Corbett Ashby (Headquarters, London, England). Again elected President of the National American Woman Suffrage Association in 1916, Mrs. Catt continued in office until women had the ballot. She then founded the League of Women Voters for the education of women in citizenship; and as temporary chairman gave way to Mrs. Maud Wood Park, now president.

In 1925 in Washington Mrs. Catt brought together the All-American Union of Women, composed of women of twelve Central and South American countries, Miss Bertha Lutz, President. She presided over the "Conference on the Cause and Cure of War" in the National Capital, which aroused a sentiment for the World Court. As a speaker and lecturer she has appeared in every state in the Union, and most of the civilized countries of the world.

In addition to a series of Presidents of the United States, Mrs. Catt has personally interviewed the Presidents of Brazil, Argentina, Chile, Uruguay, and Peru on woman's equality, and has discussed with Lloyd George, the English premier, after the War, women in the diplomatic service. Mussolini, in 1923, promised her that should he remain in power he would see that the women of Italy had the municipal vote. He made a speech in the Lower House advocating this extension of the rights of women, but a move to appoint the government of the municipalities from the top has successfully blocked any progress. In France Mrs. Catt interviewed Millerand and in Germany President Ebert, now dead. During the War Mrs. Catt served in the Women's Division of the Council for National Defense, of which the late Doctor Anna Howard Shaw was chairman.

A Typical Social Leader.—Jane Addams of Illinois, a settlement worker in Hull House, Chicago, widely known as a reformer, is perhaps the woman leader of the Peace movement of the world. With Ella Gates Starr, she opened Hull House in 1889 and has since been Head Resident. She was Inspector of Streets and Alleys in the neighborhood for three years, and presided over the conference of Charities and Corrections. She is the author of many books on social conditions and reform, is chairman of the International Committee for Permanent Peace, and president of the International Congress of Women, presiding at conventions at The Hague, Zurich, and Vienna, between 1915 and 1923. She was the leader of the women in the famous voyage of the Peace Ship during the World War. She has won degrees from many colleges in the United States.

A Typical Educator.—Martha Van Rensselaer, Director of the College of Home Economics of Cornell University, has brought the American home into a College Curriculum. She was elected school commissioner when a young teacher in Cattaraugus County, New York, by unanimous vote of Republicans and Democrats, and her tours of inspection through the rural districts brought her into contact with the "soul-smearing" drudgery of the farm women. She put into execution plans which revolutionized the work of the household, cut the kitchen in half, and installed simple suitable equipment, saving thousands of steps a day. Her report to Cornell and the Department of Education first brought about courses in Home Economics at the University, later a School of Home Economics. In 1925, Miss Van Rensselaer, now a full-fledged member of the faculty, was placed in charge of the College of Home Economics of the University of Cornell. All phases of the home problem are included in the training, from the baby to the budget. To her efforts are traceable inspiration for the Better American Homes movement now sweeping the country.

WOMEN'S RELATION TO POLITICS AND GOVERNMENT

By Jennie Loitman Barron
Counsellor at Law, Boston

CONSTITUTIONAL CHANGES

At the end of each year it is the custom of the world to count gains and losses. The following is a balance sheet showing the progress of women in governmental activities for five years, beginning with their enfranchisement on August 26, 1920, through the ratification of the 19th Amendment to the Constitution of the United States. On August 26, 1920, ended the long struggle which began when American women sent a petition to Congress in 1776 and demanded the right to vote equally with the men, which right was promptly denied them. Out of 36 states necessary for ratification, 35 had accepted the amendment by March 22, 1920, 25 having ratified in special sessions, and 10 in regular sessions. Tennessee, in August, 1920, was the 36th state to ratify the 19th Amendment.

The granting of the franchise to women made them eligible in most of the States to all elective and appointive offices. In a few states, however, the legislatures passed specific laws which made women eligible to hold office. In most of the States where the word "he" in the statute law has been interpreted, the interpretation has been favorable to the eligibility of women for such offices, but there are still one or two states where there has been no interpretation of this word.

CITIZENSHIP WORK

Practically every woman's organization today has a Civics or Citizenship department. The National League of Women Voters has a department of efficiency in government and training of women in citizenship; and a committee on the legal status of women, which seeks to remove legal discriminations against women by providing specific remedies for specific wrongs. In addition to the formed organizations, the Democratic and Republican Parties have done a great deal of work in organizing and training women for citizenship. They have held hundreds of citizenship schools throughout the nation, and have trained large numbers of women speakers for political work. These major parties have established women's branches in all the larger districts throughout the country where partisan elections are held.

POLITICS AND PARTIES

Parties. — The National Woman's Party's program is its "blanket bill," which is designed to remove all legal discriminations against women in the forty-eight states, by securing a national constitutional amendment.

Commissions.—In order to further National Legislation of interest to women, at least fourteen national organizations formed the Women's Joint Congressional Committee. This committee maintains a lobby of women. These organizations are: American Association of University Women; American Home Economics Association; General Federation of Women's Clubs; Girls Friendly Society of America; National Congress of Mothers and Parent Teachers Associations; National Consumers' League; National Council of Women; National Council of Jewish Women; National Federation of Business and Professional Women; National League of Women Voters; National Women's Christian Temperance Union; National Women's Trade Union League; National Board of Young Women's Christian Association; Service Star Legion.

Elections. — Women have participated in two Presidential elections, namely 1920 and 1924. In 1924 women were officially recognized by the various political parties, and accorded equal representation with the men from each state on the national committees.

Conventions.—The Republican National Convention convened June 10, 1924, with 425 women delegates and alternates present. For the first time a woman was elected chairman of a committee on political organization, and introduced the chairman of convention; and eight women were put on the Executive Committee.

The Democratic National Convention convened in New York on Saturday, June 24, 1924, with 476 women delegates and alternates. The National Committee appointed women on the advisory committee to meet before the convention, and adopt proposals for the platform. They had a woman chairman of the credentials committee, and one was proposed as a Vice Presidential candidate, while several women seconded the nomination of men Vice Presidential candidates. The Prohibitionists went so far as actually to nominate a woman as Vice President.

In the National Conference for Progressive Political Action, held in Cleveland, July 4 and 5, women received great recognition. And the Socialist Party throughout 1924 had a woman Executive Secretary.

Mrs. Emily Newell Blair is, at the present time, Vice Chairman of the Democratic National Committee, and Mrs. A. T. Hart of Kentucky, a Vice Chairman of the Republican National Committee, succeeding Mrs. Harriet Taylor Upton.

Measures Urged by Women.—Among the important measures which have been urged by women citizens through organizations, in the five years since their enfranchisement, have been the following:

A Department of Education, with its chief a member of the Cabinet; ratification of the Child Labor Amendment, limiting and regulating the conditions under which children shall work; a Uniform Marriage and Divorce law; the Fess Amendment, which would increase appropriations for training in home economics; World Peace; bills making women eligible and liable for Jury Service; bills requiring equal pay for equal work, regardless of sex; the Sheppard-Towner Law; the Cable Bill; Child Welfare and Public Health measures; removal of legal discriminations against women, and various other social measures in government.

The Sheppard-Towner Law was a measure proposed to improve, through a combination of Federal and State aid, the physical welfare of mothers and new born babies. Women were largely responsible for having made permanent the Women's Bureau of the United States Department of Labor. Woman's organizations also assisted greatly in securing a bill for reclassification of the Federal service, a measure which embodied the principal of equal pay for equal service in government, irrespective of sex.

EQUAL RIGHTS AMENDMENT

Program.—After the passage of the Woman Suffrage Amendment to the United States Constitution the National League of Women Voters, which was practically an offspring of the National Woman Suffrage Association, and the National Woman's Party, proceeded with a program which included the removal of all legal discriminations against women.

The campaign was undertaken by both organizations in the states. The National Woman's Party, however, in November, 1922, in addition to its state work, decided to work for the adoption of a Federal Amendment to effect the same end.

Lucretia Mott Amendment.—In July, 1923, at its National Convention, it adopted the present draft of the Lucretia Mott Amendment, which reads as follows: "Men and women shall have equal rights throughout the United States, and every place subject to its jurisdiction. Congress shall have power to enforce this article by appropriate legislation." This amendment was introduced in the Senate on December 10, 1923, by United States Senator Charles Curtis, from Kansas, Republican, and on December 13, 1923, in the House, by United States Representative Daniel R. Anthony of Kansas, Republican. It was known as Senate Joint Resolution No. 21 and House Joint Resolution No. 75.

Act Secured.—The measures were referred, respectively, to the Senate and House Judiciary Committees. The measures have never come up for a vote. December 8, 1925, the second day of the session of the 69th Congress, the measure was again introduced by Senator Curtis in the Senate, and Representative Anthony in the House. It is now before the Judiciary Committee of each branch of Congress. Through this amendment the National Woman's Party aims to establish equality between men and women by one piece of legislation, which shall free all women from the effect of National or State laws discriminating against them.

OPPOSITION TO BLANKET LEGISLATION

Propaganda.—October 11, 1923, a letter, opposing the Equal Rights or Blanket Constitutional Amendment, was sent to every member of Congress. This letter was signed by a representative of the following organizations: American Association of University Women; Girls' Friendly Societies; Industrial Department, National Building, Y. W. C. A.; National Consumers' League; National Council of Jewish Women; National League of Women Voters, and National Women's Trade Union League.

Among other organizations opposing the Amendment are: American Federation of Labor, American Home Economics Association, General Federation of Women's Clubs, National Council of Catholic Women; Medical Women's National Association.

Arguments.—The following extracts from this letter state the position of these organizations: "The organizations represented below are opposed to this measure because we are advised by many of the ablest constitutional lawyers in the United States that:

"1—Existing inequalities of laws affecting men and women as such are so complicated in character, that only specific legislation can reach them effectively. Therefore, blanket legislation would be futile.

"2—The Amendment the National Woman's Party proposes would endanger existing statutes providing a 48 hour week, 8 or 9 or 10 hour day, and other industrial legislation governing the employment of women; mother's pension law; penalty for rape; and various other laws applicable or necessary to one sex, but not to the other.

"We advocate, and our organizations have been instrumental in securing in many states, the enactment of separate laws for the removal of social and economic injuries to women—laws specific in character to remedy specific evils. We believe that blanket legislation, attempting to cover all such questions, may aggravate existing inequalities or substitute new ones."

University Women. — Since 1923 the American Association of University Women have had in operation a committee to study the situation. This committee has recommended that the American Association of University Women take no action at present, for or against the amendment, but continue the investigation, and this committee also recommends that all the organizations, both for and against the amendment, meet in order that the most effective method may be ascertained of accomplishing the end for which all the organizations stand, namely, the removal of all legal discriminations against women.

Question of Equal Rights.—Some of the proponents contend that the passage of the amendment would restore to women "freedom of individual contract."

It is contended by the opponents that the words "equal" and "rights," which are used in the amendment, are capable of interpretation in many ways, and that the passage of the amendment would, therefore, involve long drawn out litigation, with the suspension, in the meantime, of laws benefiting women. Texas, Maryland, West Virginia, South Carolina and Virginia are some of the states which have defeated the blanket bill presented to the State Legislatures.

Relation to Labor.—The proponents of the measure state that the amendment "would not affect existing labor legislation," except to establish the principle that protective legislation should apply to all workers, both men and women, in any given occupation, and not to women workers alone. They state that laws which regulate the conditions of labor of women only, and not of men, often prevent women from securing employment and promotion, and that the speediest way of emancipating women is through a Federal Amendment. They also urge that a Federal Amendment would be far more difficult to change or repeal than would a state law.

JURY SERVICE FOR WOMEN

Present Status.—Women are eligible for Jury Service in 21 states in the union, namely: Arkansas, California, Colorado, Delaware, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Missouri (limited jury service only), Nevada, New Jersey, North Dakota, Ohio, Oregon, Pennsylvania, Utah, Washingtan and Wisconsin.

In several of these states women became liable for jury service through the passage of the 19th Amendment, inasmuch as the term "citizen," "qualified voter," "elector," or a like term is used in these states as the qualifications making a person liable for jury service.

Exclusions.—In 22 states the word "male" qualifies a "juror." In Kansas, Utah, Washington and Colorado, there is express provision for women jurors. In those states where the laws do not expressly provide for women jurors, nor expressly prohibit them from serving, some of the attorneys general have held that women are eligible for jury duty, the New Jersey Attorney General stating "The 19th Amendment to the Federal constitution supersedes any inconsistencies in the state constitution or law." Nevertheless, in other states a number of attorneys general have interpreted the statute to restrict women from serving on juries. For example, in Delaware and Massachusetts, although the qualifications for serving on juries are "persons qualified to vote," the attorneys general in the respective states have held that women are not eligible.

Reasons for Exemption.—In New York, Massachusetts, Connecticut, and other states, bills have been presented to the respective Legislatures making women liable for jury service, with certain exemptions, but to date they have failed of passage. However, proponents of this measure are continuing their campaign. The exemptions in these bills are, for the most part, the same exemptions as are given to men with additional exemptions to women nurses; women nursing sick members of their own families and mothers of young children. Women regard jury service as an incident of citizenship, and are urging it both as a matter of justice, and also because they believe that women jurors will improve the administration of justice.

The proponents of the measure argue that the right of trial by jury was intended to give every citizen a trial by an *impartial* jury and judgment by one's *peers*, and that a woman on trial is not receiving a trial by an impartial jury and judgment by one's peers when women are excluded from the jury box; that a jury should represent a cross section of the community, and no cross section of the community is complete without women; that women are especially needed in cases involving women and girls, and in cases affecting public morals.

CABLE ACT FOR CITIZENSHIP AFFECTED BY MARRIAGE

Agitation.—One of the outstanding examples of the change in the laws affecting the citizenship of women is the Cable Act, which was approved on September 22, 1922, and which was the result of an active campaign waged by women voters. Prior to the passage of this law, it was axiomatic that a woman's citizenship followed that of her husband. Mrs. Maud Howe Elliott, the American born daughter of Mrs. Julia Ward Howe, is an example of an American woman who lost her citizenship in 1896 through her marriage to an Englishman. On June 16, 1923, because of the enactment of the Cable Act, Mrs. Elliott was able to regain her own nationality.

Outline.—Briefly, this act provides that:—

1—An American woman citizen does not lose her citizenship upon marriage to an alien.

2—An alien woman does not gain citizenship upon her marriage to a citizen.

3—An alien woman whose husband becomes naturalized after September 2, 1922, does not gain her citizenship through her husband's naturalization.

4—A woman whose husband is not eligible to citizenship, such as a Japanese or Chinese, shall not be naturalized during the continuance of the marriage status.

Inequalities Remaining.—The citizenship rights, established between men and women, however, are not made entirely equal, inasmuch as an American man who marries a woman ineligible to American citizenship, continues an American citizen, although the converse is not true. Also, if a native American woman citizen, married to a foreigner, lives abroad continually for five years, or lives for two years in the foreign country of which her husband is a citizen, there is a legal presumption that she is no longer an American citizen, unless she takes affirmative action to overcome this presumption. The converse, however, is not true; a native American man citizen married to a foreign woman is still presumed to be an American citizen under the same circumstances.

Difficulties have arisen, through the passage of the law, since alien women from certain countries forfeited their native citizenship upon their marriage to an American, although they did not acquire their husband's citizenship. Such women have been called "women without a country." There are other foreign countries which allow her to retain her own citizenship in case she marries a man whose citizenship is not acquired by her upon marriage. Among such countries are France, Lithuania, Poland, Italy, Switzerland and Denmark. Germany, Sweden and Finland are among the others which do not allow women to retain their native citizenship upon marriage to an American citizen, but who do issue special travel papers in the event of travel.

Advantages to Women.—Inasmuch as several states make citizenship a condition precedent to obtaining Mothers' Pensions, Husbands' Homesteads, or Municipal Employment, alien widows, whose husbands were American citizens, have been deprived of these benefits even when all the children are American born. An alien woman wishing to accompany her husband, who is an American citizen, on a trip to a foreign country is refused a passport on leaving the country and cannot return with safety, or without encountering the difficulty of classification under the quota laws of the Johnson Immigration Bill. It has been suggested that the Cable Law be changed so as automatically to confer upon the wife of a naturalized citizen all the rights of citizenship, except that of the franchise.

OCCUPATIONS AND CONDITIONS OF WOMAN LABOR

By Mary Anderson

Director of the Women's Bureau, Department of Labor

Sources of Information.—The subject of woman labor gains increasing attention with each passing year, as more and more women enter the field of gainful employment and as they engage in a greater variety of occupations. Every man, woman, and child in the country is, to some extent, dependent upon the work of the more than eight and a half million wage-earning women, employed in all but 35 of the 572 occupations listed by the U. S. Bureau of the Census for 1920. In any consideration of the numbers and occupations of women workers at the present time it is necessary to resort to the census of that year since no later data which are at all comprehensive are available. A discussion of the occupations and conditions of woman labor in the United States for the year 1925, as separate and distinct from the preceding years, is out of the question.

This fact is evident from the information furnished by the Women's Bureau of the U. S. Department of Labor, an agency especially appointed by Congress to collect and disseminate data concerning wage-earning women. In view of the vast number of women workers and the great variety of their jobs and in view of the bureau's limited personnel and funds, this organization can consider for any one year only a few of the many problems pressing for attention and can investigate only a part of the field placed under its supervision. However, a survey of the publications and activities of the bureau for the year 1925 is perhaps the best way of giving a picture of the situation in regard to women workers. Even then the picture is not a clear-cut one for a definite year, but rather a panoramic representation of conditions for the 5-year period 1920 to 1925.

Two publications in 1925 are noteworthy: *Facts About Working Women*, and *Occupational Progress of Women*, the latter antedating the first by several years. Each is an analysis by the Women's Bureau of 1920 census figures; they are extremely enlightening in regard to the types of occupations in which women are engaged, their occupational progress during the several decades, and the kinds of women found in the wage-earning ranks.

General Fields of Occupation.—Try as you will you cannot get away from the woman worker; she is everywhere, and everywhere she is doing useful, important work. Statistics are not a popular way of giving information, but often they serve as a necessary skeleton on which to hang more graphic statements.

The general types of work done by women and the numbers in each broad occupational classification are listed by the 1920 census as follows: domestic and personal service, 2,186,924; manufacturing and mechanical industries, 1,930,341; clerical occupations, 1,426,116; agriculture, forestry, and animal husbandry, 1,084,128; professional service, 1,016,498; trade, 667,792; transportation, 213,054; public service (not elsewhere specified), 21,794; and extraction of minerals, 2,864.

Because of their size these figures are arresting, but perhaps of greater interest are some of the details behind this general list. Having finally blazed the trail of remunerative employment outside the home, women have stopped short at practically no type of work although many of the jobs which they perform are similar to tasks that women had for ages been responsible for in the home. Now that we have outlived the era when the slogan, "Woman's place is in the home," was at the height of its popularity, women are found in occupations which not so long ago were unheard, or undreamed of, as possible and practical ways for women to earn a livelihood. Four or five decades ago the girl in business was a curiosity, a woman doctor or lawyer was an object of prejudice, and the woman professor was scoffed at as a bluestocking. In this country to-day are thousands of women in such vocations.

There are even women who are managers and superintendents of factories, bankers and bank officials, chemists, clergymen, judges, inventors, engineers, and architects. There are women chauffeurs, draymen, teamsters and expressmen, garage laborers, switchmen and flagmen on steam railroads, ticket and station agents, telegraph messengers, steam and street-railway laborers, and large numbers of women working as telephone and telegraph operators.

Greater numbers of women are in other ranks, working in factories manufacturing cloth, garments, shoes, cigarettes and countless other articles. The overalled woman with grimy hands, making guns and shells, was a conspicuous person during the war, but she has been more or less forgotten since, and not everyone knows that she has not given up her factory work but is probably busy now producing implements of peace, while she still wears the overalls and works on the same kind of machine that she used for making guns and shells. In almost every factory where men work there are some women employed, but in some kinds of establishments there are many more women than men. In the clothing factories, where corsets, gloves, shirts, collars and cuffs, and other articles of clothing are made, and in knitting and silk mills, there are employed nearly twice as many women as men.

Increase of Women Workers.—In all general divisions of occupations other than agriculture and domestic service, women have increased in number since 1910. In clerical occupations they were nearly two and one-half times as numerous in 1920 as in 1910, as they were also in the extraction of minerals, though the number in the latter industrial group was small; the number in transportation had doubled; those in trade had increased 42.7 per cent.; and those in professional service 38.5 per cent. In domestic and personal service there was a great decrease in both the number and proportion of women so occupied. Not all Americans know that farm labor is the occupation in which more women are engaged than in any other except domestic service, yet according to the census figures this condition has prevailed in the United States for at least 40 years. However, the number of women in agricultural pursuits in 1920 had dwindled considerably as compared with the number in 1910, a diminution partly, but by no means entirely, explainable by the change in census date.

Comparison with Male Labor.—Women as wage-earners are the object of more attacks and more concern than are men. In civilized ages men have always been the accepted breadwinners, but until recent years the phenomenon of women serving in such capacity was more unusual. Woman's assumption of the breadwinning rôle has naturally stirred up much discussion. Since women have another important rôle to enact,—that of home maker and mother, since they are producers not only of economic goods but of future citizens, much interest attaches to certain personal facts about them as wage earners.

A little over one-fifth of the women, as compared with approximately four-fifths of the men, are gainfully employed. Also, one in every five workers is a woman. The comparison of their occupational distribution with that of men shows that in agricultural pursuits, in manufacturing and mechanical industries, and in transportation, the great majority of the workers are men, that is, four-fifths or more in each case. Domestic service shows a larger proportion of women—two-thirds of the total number of workers—than of men. In clerical service and in professional service the women, constituting not far from one-half of the workers in each group, almost equal the men.

Ages.—Analysis of the woman workers in regard to age reveals that it is not only young women but those of all ages who are employed. One-fifth of the women workers are under 20 years of age, two-fifths are under 25, two-fifths are 25 and under 45, and a little less than one-fifth are 45 years of age or more. Two-thirds of the women in transportation, three-fifths in clerical jobs, nearly one-half in manufacturing industries, and practically two-fifths in agricultural pursuits, in the trades, and in the professions are less than 25 years of age, in contrast to the one-fourth of those in domestic service who were as young as that. In fact, three-fourths of the women in the latter occupational group are 25 years and over, and nearly one-third are 45 or more.

Married Women Laborers.—A contrast of the ages of men and women workers shows that whereas one-fifth of the women are under 20, only one-tenth of the men are as young as that, and only a little over one-fifth of the men as contrasted with two-fifths of the women are under 25 years of age. The theory that girls are only transients in the world of employment, that they leave such occupations when they marry, is being discredited in the face of facts. The truth is that a number of women workers never marry but continue in gainful occupations for 40 or 50 years. Furthermore, many married women continue to work after marriage, in the majority of cases from economic necessity. According to the 1920 census there are two million married women; that is, 9 in every 100 married women in the country are employed in remunerative occupations. It must be pointed out that the census publications class widowed and divorced women with single women, so that it is not possible to ascertain the total number of women workers who are or have been married. It is of interest at this point, therefore, to quote from a 1925 report of the Women's Bureau which contains an analysis of census figures in four selected cities — Jacksonville, Fla.; Wilkesbarre, Pa.; Butte, Mont.; and Passaic, N. J. The data show that of the approximately 40,000 wage-earning women in these cities, 21,000 or about 55 per cent. may be designated as matrons, that is, those who were married, widowed, separated, or divorced. Over three-fifths of these 21,000 were living with wage-earning husbands, and over one-half of the matrons had children, two-fifths of the mothers having children under 5 years af age.

Because of the prejudice existing in some quarters against the married woman worker, it is significant to consider their occupational distribution. One-third of the married women are in domestic service, one-fourth in manufacturing and mechanical industries, one-fifth in agricultural pursuits, 8 per cent. in trade, about 7 per cent. in clerical service, and a little over 6 per cent. in the professions. Since over three-fourths of the married women are found in manufacturing, domestic service, and agriculture—types of work in which women have almost no opportunity for a career—it would appear that economic necessity, and not the desire to escape household drudgery, is responsible for their gainful employment. In fact, investigations have revealed that the married woman worker usually performs her household tasks in addition to her remunerative job.

Special Legal Protections.—It has been the duty of the Women's Bureau, in the interest of health measures for women workers, to study the problems surrounding their employment and to draw up standards designed to make such employment safe for women. These standards may be outlined briefly. The 8-hour day, Saturday half-holiday, one day of rest in seven, adequate time allowance for meals, rest periods at stated intervals, and the prohibition of night work are the hour standards adopted. A living wage without discrimination because of sex is the recommended wage standard. The workroom conditions advocated include: clean workrooms; lighting without glare; adequate ventilation; cool and accessible drinking water, with individual drinking cups or sanitary bubble fountains; washing facilities with hot and cold water, soap, and individual towels; an adequate number of clean, accessible toilets (one seat to every 15 women); cloak rooms; lunch rooms; and rest rooms. For correct posture at work it is recommended that seats have backs and foot rests and that they be adjusted to fit the machine and worker; also that, where possible, seats be so adjusted to machines and worktables that workers can sit or stand at work. Careful protection from machinery risks, from danger of fire, and from exposure to dirt, fumes, and other occupational hazards is also recommended. The prohibition of home work is another standard. In administration it is recommended that there be provided a satisfactory personnel department to have charge of employing and discharging, that there be competent women with responsibility for conditions affecting women workers, and finally that coöperation of these workers be secured in establishing standards.

These policies are urged not only in behalf of health but of efficiency. It pays to have good conditions of work. Nevertheless, although the foregoing standards are not difficult to attain, and although a number of progressive managers have incorporated them in their industrial program, many other employers of women, either from ignorance, indifference, or conservatism, linger behind in the march of progress and subject their employees to conditions menacing to good health and good business.

Need of Improvement.—As long as any women work in plants grimy with accumulated dirt, strain their eyes because of glare or insufficient light, stand all day or sit continuously in a cramped position; as long as their safety is jeopardized because of unguarded machinery or lack of protection against fire; as long as health is menaced by such things as the common drinking cup and the common towel; as long as one toilet must serve for 50 or more women; as long as employees must run the risk of having their wraps ruined or stolen or must eat their lunches amid the debris on their worktables, or must lie on the floor of the toilet room when ill for lack of proper service facilities—conditions which still exist in a surprising number of plants throughout the country—then not only is national pride in working conditions out of the question but definite action for improvement is called for. Wrong conditions of employment for women mean insufficient strength for bearing children and insufficient time to care for them. The sequel of this situation is the inevitable weakening or crippling of the nation. Evils of this sort are insidious rather than obvious. The health of women is in the final analysis the keystone in the tower of strength of the Nation.

Hours of Labor.—More concrete information on the hours, wages, and working conditions of women in a few States in the country are contained in reports published by the Women's Bureau during the year, 1925. For example, in one report are found data for a week in September, 1922, on scheduled hours, obtained by the Women's Bureau in 13 States and 2 additional cities—Alabama, Arkansas, Georgia, Indiana, Iowa, Kentucky, Maryland, Missouri, New Jersey, Ohio, Rhode Island, South Carolina, Virginia, Chicago, and Philadelphia — covering altogether 162,792 women employed in 1,709 stores, factories, and laundries. Over one-third of those for whom scheduled daily hours were reported had a 9-hour day, and almost one-fifth were on a schedule of 8 hours or less. These figures should not be taken to indicate anything like uniformity throughout the States included, the standards of some States being widely different from those of others. At the foot of the list stand South Carolina with over four-fifths (84.3 per cent.) of the women employees reported as working regularly 10 hours a day and Georgia with a third employed on a 10-hour schedule and almost 30 per cent employed for more than 10 hours. As representative of a higher standard are Iowa with 36.8 per cent. of the women reported working on a schedule of 8 hours or less and Maryland with practically one-third of the women included so classified. In Ohio and Missouri, although the short day was not so common as in Iowa and Maryland, it was more frequently practiced than in any of the remaining States surveyed.

A 50-hour week was the standard for the largest group of women when the workers of all the States surveyed were considered together. One-third of all women had a scheduled week of 48 hours or less; Rhode Island, New Jersey, and Maryland took the lead with approximately 68 per cent., 55 per cent., and 52 per cent. of the women reported in each, respectively, showing such a schedule. An over-whelming majority of the South Carolina workers, on the other hand, regularly put in more than 54 hours a week while in both Georgia and Alabama practically two-thirds of the women reported had a scheduled week of more than 54 hours.

Holidays.—The figures obtained in the States included indicate clearly the prevalence of a Saturday afternoon holiday in the factories. Over 95 per cent. of the women reported in the manufacturing industries had a shorter day on Saturday than on the other days of the week. Only about four-fifths of the laundry workers had a short Saturday. While the habit of keeping stores open for Saturday evening shopping has at least practically disappeared in the cities, it still remains in smaller places, and practically three-fifths of the women employed in the general mercantile and 5-and-10 cent stores had longer hours on Saturday than they had on other days. In general, satisfactory allowance was made for the lunch period. Only 1 per cent. of the women surveyed had no regular lunch time or had a period of less than 30 minutes.

Night Work. — Very few night workers were employed in the plants reporting; in fact, less than 2,000 women, who were found in 51 different plants. The largest proportion of the night workers were employed in the textile industries, and their most usual schedule of work was 11 hours a night.

Need of Legislation.—Although in each State included there were progressive employers who stood out for the maintenance in their plants of hour schedules in advance of the legal standards, there were, nevertheless, in the various States a considerable number of employers who adhered in their hour schedules for women to the daily and weekly maximum permitted by law. It is evident, therefore, that more progressive legal standards are necessary in the great majority of the States surveyed to insure all women in industry against an overlong working day.

Variation Among States.—A matter of considerable interest in connection with wage-earning women is the great variation in the labor laws for these workers in the different States. In all, 43 States, the District of Columbia, and Porto Rico have laws regulating the number of hours women may be employed, showing that the tendency to safeguard women in the interest of the home and the family is almost nation-wide. A much greater effort, however, is necessary to make industry safe for women. In many States the number of industries or occupations coming under the law is so limited as to affect only a small proportion of the wage-earning women in the State. Moreover, only 12 States—Arizona, California, Colorado, Kansas, Massachusetts, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, and Washington—the District of Columbia, and Porto Rico limit the number of hours of women employees in some industries to 8 hours a day or 48 hours a week. Night work for women is prohibited to some extent in 16 States—California, Connecticut, Delaware, Indiana, Kansas, Massachusetts, Nebraska, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Washington and Wisconsin—and Porto Rico. About one-fourth of the States have laws either prohibiting or regulating home work. Women are in positions of authority in the State departments of labor in 15 States and in minor positions in 19 States for the purpose of looking after the interests of wage-earning women.

Wages.—Comprehensive wage data for women workers for any one period are not available However, figures which have been collected by the Women's Bureau in 14 State investigations of women's earnings in factories, stores, and laundries—surveys made during the past 5 years—show very definitely that although some women workers are paid a fair return for their labors, thousands fail to receive a living wage and are forced to eke out an existence, often doing without the barest necessities of life. Of all the States in which surveys have been made, Rhode Island showed the highest wages, if median earnings are used as a measure The median of week's earnings of 7,780 Rhode Island women whose earnings were recorded was $16.85; that is, one-half of these women earned more than this sum and one-half earned less. The survey in this State, however, was made in 1920 when wages were uniformly high as the result of the war activities, and are not representative of the present time.

A study of the wages of 4,138 women in Kansas in 1920 showed a median of only $11.95. The median of week's earnings of 6,666 women included in the Georgia survey in 1920 and 1921 were $12.95, this period covering the time when wages were at the peak as well as the beginning of the industrial depression of 1921. The figures for the two studies made entirely in 1921 are probably affected to some degree by this slump; the median for 7,426 women in Kentucky was $10.75, and the median for 8,595 women in South Carolina was $9.50. For the five studies conducted in 1922 the medians varied as follows: $14.95 for 34,655 women in New Jersey, $13.80 for 30,568 women in Ohio, $12.65 for 15,364 women in Missouri, $11.60 for 1,793 women in Arkansas, and $8.80 for 4,868 women in Alabama. No wage studies were made by the bureau in 1923 and only two in 1924—one in Oklahoma which included 3,452 women and showed a median of $13, and one in Delaware covering 2,995 women whose median was $11.05. In 1925 two State studies of wages have been completed. The first was made in Mis-

TABLE.

Occupations in Which 50,000 or More Women 10 Years of Age and Over Were Employed in 1920 and Number of Women Employed in Each, 1920 and 1910.*

Occupation	Number of Women 10 Years of Age and Over Employed in—	
	1920	1910
Farmers, general farms	247,253	257,703
Farm laborers, general farms †	788,611	1,514,107
Dressmakers and seamstresses (not in factory)	235,519	447,760
Milliners and millinery dealers	69,598	122,447
Semi-skilled operatives:		
Cigar and tobacco factories	83,960	71,845
Clothing industries	265,643	237,270
Food industries	72,402	36,600
Iron and steel industries	57,819	23,557
Shoe factories	73,412	59,266
Cotton mills	149,185	140,666
Knitting mills	80,682	65,338
Silk mills	72,768	50,360
Woolen and worsted mills	61,715	52,056
Telephone operators	178,379	88,262
Clerks in stores ‡	170,397	111,594
Retail dealers	78,980	67,103
Saleswomen (stores)	356,321	250,487
Musicians and teachers of music	72,678	84,478
Teachers (school)	635,207	476,864
Trained nurses	143,664	76,508
Boarding and lodging house keepers	114,740	142,400
Housekeepers and stewardesses	204,350	173,333
Laundresses (not in laundry)	385,874	520,004
Laundry operatives	80,747	76,355
Nurses (not trained)	132,658	110,912
Servants §	1,012,133	1,309,549
Waitresses	116,921	85,798
Bookkeepers and cashiers	345,746	183,569
Clerks (except clerks in stores)	472,163	122,665
Stenographers and typists	564,744	263,315

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* Because of differences in the occupation classification used by the Census Bureau in 1900, it was not feasible to include the 1900 figures in this table.

† Includes farm laborers (home farm) and farm laborers (working out).

‡ Many of the "clerks in stores" probably are "saleswomen."

§ Includes chambermaids, cooks, ladies' maids, nursemaids, bell girls, chore girls, etc., and other servants.

sissippi during January and February and comprised only 2,136 women, the median for this group being $8.60. A similar investigation was made in Tennessee in the spring. Wage records collected for 14,642 women revealed a median of $11.10.

Government Publications.—In addition to the publications already referred to, the Women's Bureau during 1925 has published or sent to press several other reports of considerable interest. One of these deals with the home environment and employment opportunities of women in coal-mine operatives' families; the immediate source of this information was the material collected by the U. S. Coal Commission in 1922-1923. Another report entitled *The Effects of Applied Research Upon the Employment Opportunities of American Women* contains descriptions of conspicuous changes which have occurred in such opportunities in certain industries as a result of the application of scientific research in the industrial field. A third study consists of a discussion of women workers in the fruit-growing and canning industries in the State of Washington, the field investigation of which was made in the summer of 1923. Other studies of significance which have been handled by the bureau during 1925, but the reports of which have not yet been published, are as follows:

Absenteeism of women in textile mills.
The status of women in the Government service in 1925.
Women who toil at night.
Industrial accidents among women.
Trend of employment among women.
Minimum wage laws.
Effects of special legislation upon women.

It is also important to call attention to the survey of foreign-born women in industry, the field work of which has very recently been completed.

This survey was undertaken at the urgent requests of organizations and persons interested in the establishment of greater opportunity and better understanding of American life among the foreign-born population of the United States.

Women's Bureau. — That the Women's Bureau has been unable to collect during any one year extensive material on all subjects which come under its supervision has been due to the fact that it has been limited in appropriation and personnel. That it has been able to accomplish as much as it has in its brief history is due partly to the aid of the organizations of interested women in all parts of the country desirous of bettering conditions for women workers, to the assistance of State authorities, and to the coöperation of employers through whose efforts the collection of data, in so many instances, has bee made possible.

WOMEN'S WORK FOR PEACE

By Ruth Morgan

Chairman, International Coöperation to Prevent War

Significance.—The most outstanding question of foreign policy in 1925 has been the proposed entry of the United States into the World Court. The movement has been transformed from the increasing support of a measure; it has become an adoption of A Cause; and this although the party in power under its leader, President Coolidge, has supported the Cause. The churches, the women's groups, and the universities have emphasized its specific and limited function in the cause of Peace.

Most of the woman saints have been reformers and statesmen. A high ideal and a definite program to realize it have been the two sides of their saintly shields. From Jael and Esther of the Old Testament to Joan of Arc and Catherine of Siena, they have risen from prayer and meditation to affect the conduct of Public Affairs.

Educational Process.—What part have the women of this country played for Peace in 1925? Soon after 1920 two women, both statesmen in a real sense, Mrs. Carrie Chapman Catt and Maud Wood Park, determined that women must do their duty as citizens in behalf of a sane foreign policy for Peace. That an active constructive Foreign Policy was a new necessity for this country, and that women everywhere must learn to be intelligent about foreign affairs. The state of affairs in 1925 is in part the result of a three-year educational process carried on by the League of Women Voters, the Young Women's Christian Associations, the American Association of University Women, the Federation of Women's Clubs and other associations.

Organization.—In January, 1925, the climax was reached and the nine largest national women's organizations met in Washington under Mrs. Catt's leadership and discussed the Causes and Cures of War with informed speakers for a week. This meeting registered the great progress already made in popular understanding; and it went on record for the World Court and the elimination of the causes of war.

In all parts of the country the women of the United States have united with their churches for Peace. They have joined with their universities, they have joined with public schools, they have lunched, tea'd, dined and radio'd for it. They have held talkers' schools and round tables everywhere—and all for Peace and the World Court.

Arousing Influence.—"How far is 1925 really different in this respect from any other year, have not women always loved Peace, and haven't they always talked about it?" The great game of 1925 is to illustrate the big truth that movements which coincide with strong human currents of belief and with normal action do succeed and not because they are opposed and indifferent to the advance of mankind.

Work for babies will always grow because almost all women will learn and make sacrifices for the sake of helpless children. Women do love Peace and they can learn to talk about it effectively.

Adult Education. — In recent months there have been new interests in the direction of concentration in the movement for adult education in international affairs, in organized efforts to get knowledge of affairs and spread it, and in the acceptance of the fact that machinery for Peace must be built by governments. As Elihu Root has said many times, "Peace can only come through the democratic control of International Affairs," and women have learned this lesson.

World Court.—To this end American women have accepted as one first measure the World Court, and have worked for it as citizens should strive for political ends—openly through accepted channels. Early 1926 will doubtless give many American women a deeper confidence in representative government by the passage of the measure permitting the United States to become a member of the Permanent Court of International Justice.

"If the world is to go forward along the line of regional pacts for Disarmament and Security, how about a Locarno Pact for the Pacific as a next step forward?" asks Mrs. Catt in November, 1925.

This year women have instituted new anniversaries—August 26, the fifth anniversary of suffrage, where old suffragists throughout the country spoke and wrote for the World Court and Peace.

LITERARY ACHIEVEMENTS OF AMERICAN WOMEN

By May Lamberton Becker

Editor, Readers Guide, Saturday Review of Literature

Prizes. — If we are to measure achievement by reward, American women writers have a good record for 1925. The Pulitzer Prize for fiction was won by Edna Ferber's *So Big*, the Harper Prize by Anne Parrish's *The Perennial Bachelor;* Martha Ostenso's first novel, *Wild Geese*, won $13,500 offered by a combination of publishing and cinema interests and Fannie Hurst's *Mannequin* carried off *Liberty's* $50,000 for a novel to serve as serial and as scenario. Women won three out of four of the first prizes offered by *Harper's Magazine* in its series of short story competitions: Alice Brown for "The Girl in the Tree," Fleta Campbell Springer for "Legend," Ada Jack Carver for "Redbone." Two of the second prizes in these competitions were won by women, Lisa Ysaye Tarleau and Edwina Stanton Babcock, and two third prizes, by Margaret Culkin Banning and Phoebe H. Gilkyson. In the annual O. Henry Short Story Competition Inez Haynes Irwin's "The Spring Flight" took first prize; and the third was won by Frances Newman (who has this year produced a scholarly work on the development of the short story) for "Rachel and Her Children"; while of the fifteen stories selected, for special merit, to appear in the volume resulting from this competition, six were by women. Poetry awards, or at least a part of them, are separately noted, and in these as well as in the many smaller competitions women's names appear often enough upon the lists of awards.

Novels. — Of the novels so decorated, *So Big* is less important as a work of art than as a sign of the times: its tremendous and prolonged popularity is another evidence of the number of Americans who at the height of a period of prosperity have become dissatisfied with their own standards of success. The distinction of *The Perennial Bachelor*, however, is less in theme than in technique: a family history stretching over sixty years, in which four women immolate themselves to rear one futile man, might easily have been not only gloomy but heavy; but Mrs. Parrish deftly permits the reader to discover that this man is not so much a creation of God as a masterpiece of four women, and that to justify its existence a masterpiece need not satisfy the public or the critics but only the artist; hence there is no overwhelming tragedy of frustration. It is quite likely that this novel will be one of the few of the year that will be here in ten years' time. So will *The Mother's Recompense*, if only because all that Edith Wharton writes must be taken into account by future appraisers of her part in our literature. This novel invests a situation more popular with French writers than with American readers with a pathetic dignity that sets it over her average of production. Two novelists have this year more than maintained their averages: Ellen Glasgow in *Barren Ground,* the story of a woman's lifelong struggle toward reconciliation with life, reaches the highest point in what has been for the most part a steadily mounting development; Willa Cather, in *The Professor's House,* has given us what may well be the outstanding novel of the year in the United States. It is now comfortingly clear that Miss Cather has cut loose from the pressure of the public, even of the unusually intelligent public which has from the first been hers, and is writing altogether from an inner compulsion, concerned only that her form of expression shall be appropriate.

Family chronicles and problems of society affecting family life continue to interest the greater number of women writers of fiction. Inez Haynes Irwin, in *Gertrude Haviland's Divorce,* gives sound, sane and sympathetic treatment to a subject usually clogged with sentimentality. To illustrate the range of novels of this general nature a list might well include: Kathleen Norris, *Little Ships;* Ruth Suckow, *The Odyssey of a Nice Girl;* Dorothy Speare, *The Girl who Dared;* Edith O'Shaughnessy, "Married Life" (a group of novelettes); Nalbro Bartley, *Bread and Jam;* Margaret Wilson, *The Kenworthys* (by the winner of last year's Pulitzer Prize); Helen Hull, *The Surry Family;* Janet Fairbanks, *The Smiths;* Marjorie Barkley McClure, *The Bush That Burned;* Isabella Holt, *The Low Road;* Fannie Kilbourne, *Mrs. William Horton Speaking.* In this field several newcomers have distinguished themselves, especially Rose Franken with *Pattern,* Helen Woodbury with *The Misty Flats* (both of these are studies of a relationship lately much under fire, that of mother and daughter) and Mathilde Eiker, whose extraordinary study of three women in *Mrs. Mason's Daughters* is as representative in its own way of an American social problem as Brieux's *Three Daughters of M. Dupont* or Chehov's *Three Sisters*, dealing with corresponding situations in France and Russia. *Prairie Fires*, by Lorna Doone Beers, outgrows the frame of a family novel, involves the fortunes of farming in the Northwest, and stands out as one of the most promising first novels in years.

Historical Fiction. — This list is headed by Honoré Willsie Morrow's *Romance of the Winning of Oregon*, told with the ingratiating honesty of the new type of historian, with Mary Johnston's *The Slave Ship*, of novels of this class. We have had besides, Bernie Babcock's addition to Lincoln apocrypha, *Booth and the Spirit of Lincoln;* Julia Flisch's *Old Hurricane;* Alice P. Smith's *Kindred*, and other romances concerned with past time. Such for that matter is one of the most distinctive of our novels, Elinor Wylie's *The Venetian Glass Nephew*, but this delicate fantastic escapes altogether from time and categories. Comparatively few women are writing successful detective stories, but the most popular one this year by man or woman was undoubtedly *The Red Lamp*, by Mary Roberts Rinehart, which twines two mysteries, crime and ghosts. Women continue to produce cowboy fiction, of which the entertaining tales of B. M. Bower (*Meadowlark* is the latest) are easily first.

Literary Biography and Autobiography.—The outstanding achievement in literary biography for America this year is Amy Lowell's *John Keats*, and her loss is the greatest loss to American literary criticism. Late in the season came two unusually important works, not only as literary biography but for the student of woman's part in our literary life; *The Diary and Letters of Josephine Preston Peabody*, edited by Christine H. Baker; and *Kate Douglas Wiggin as Her Sister Knew Her*, by Nora Archibald Smith. Earlier appeared *The Life and Letters of Mary Putnam Jacobi*, edited by Ruth Putnam; Ida Tarbell's *Life of Judge Gary*, and Clara Barrus's Boswellian record of *The Life of John Burroughs*. Mary N. Stanard not only edited unpublished letters of Edgar Allan Poe but published a biographical study of him as *The Dreamer*, and Corra Harris set down, in *As a Woman Thinks*, the conclusions reached by an author whose life has called for, and produced, a red-blooded philosophy. Women figure in all sorts of life-studies: Janet Scudder's *Modelling My Life*, is the autobiography of a sculptor; many an American actress appears in Mary C. Crawford's *Romance of the American Theatre*, and Mary A. Best presents Quaker biographies in *Rebel Saints*. There is a new, re-written version of Mary Austin's *The Man Jesus*, now called *A Small Town Man*. Mary Lawton preserves Katy Leary's memories of a happy American home in *A Lifetime with Mark Twain*, which though not the counterblast to Van Wyck Brooks for which it may have been intended, is for all that an invaluable addition to Twainiana. In *Catherine the Great*, Katherine Anthony exercises a technique exhibited in her earlier life of Margaret Fuller, upon a subject that gives it plenty of exercise.

Literary Criticism.—Some of the works of literary criticism are noteworthy, especially the arrangement of material and running commentary with which Frances Newman presents a robust subject in *The Short Story's Mutations*, and the contribution to our source material of social and literary history made by Jeannette R. Tandy in *Crackerbox Philosophers*. This list might well include Elizabeth H. Haight's *Horace and His Art of Enjoyment;* Ruth Phelp's *Earlier and Later Forms of Petrarchs Canzoniere*, and Edith Wharton's *Writing of Fiction*. While Dorothy Scarborough's *On the Trail of Negro Folk Songs*, is an important contribution to a subject just now being widely discussed. *Everyman's Genius*, by Mary Austin, is valuable not only for its ideas but for its careful documentation; this is true also of an uncommonly valuable contribution to phonetics, *Euphon-English*, by Margaret De Witt.

Travel books have quite lately become a favorite form of literary expression for women; women have written plenty of them all along; but a comparison of Blair Niles *Casual Wanderings in Ecuador* and *Colombia, Land of Miracles* with one of the bygone volumes of ladies' letters home will show what the change has been. American women now write from and about all corners of the map, as indicated this year by Grace Thompson Seton, *Yes, Lady Saheb*, for India; Elizabeth Crump Enders, *Temple Bells and Silver Sails*, for China; Elizabeth, *Touring Through France;* and Katherine Fullerton Gerould, *The Aristocratic West.*

L'Heure Joyeuse.—An American woman, Caroline Griffiths (Mrs. John Griffiths) has been this year signally honored not only by the French Government but by learned societies in France and England, for her unique work in connection with the establishment and maintenance of the first children's libraries in Europe conducted on the plan of the model American children's library. The value of *L'Heure Joyeuse*—the appropriate name of these libraries in France and Belgium—can scarcely be overestimated in its relation not only to literature and education, but to the building up of future and lasting international understanding. Accepted at first by the French as a gesture of friendship, it is being retained by them as a necessity, and its founder distinguished with many honors.

Poetry.—America is this year the poorer for two poets. It scarce seems possible, to anyone who came into personal relation with the rich and vibrant life of Amy Lowell, that her new book, *What's O'Clock?* should bear the word posthumous; she lived so intensely that it seems incredible that she should be dead. Edith Thomas, recluse and mystic, to whom life tasted always of immortality, had for years sung out of solitude, and much of her later verse is still in manuscript: Jessie Rittenhouse (Mrs. Clinton Scollard) is at work upon a collection of her poems published and unpublished. Martha G. Dickinson Bianchi, whose *Life and Letters of Emily Dickinson* is one of the most important of the biographies of our poets, has this year published her own volume, *Wandering Eros;* other versifiers are Aline Kilmer, *The Poor King's Daughter;* Grace Hazard Conkling, *Ship's Log;* Margaret Widdemer, *Ballads and Lyrics;* Sister Mary Angelita, *Sunshine and Candlelight.* It should be noted that a searching and spiritual study of the mediæval poem "Pearl" has come from another nun, Sister M. Madeleva, who earlier in the season published a genuine contribution to understanding of the "Canterbury Tales" in her *Chaucer's Nuns.* The *Collected Poems of H. D.* might be claimed for this list, for though the author, Mrs. Richard Aldington, is a British subject, Hilda Dolittle was born in America. Of comparative newcomers Leonora Speyer, whose second volume *Fiddler's Farewell* appeared this year, and Babette Deutsch, with *Honey out of the Rock,* are especially important to be kept in mind.

The sensation of the season in the popular sense has been made by the appearance of *Lava Lane*, by Nathalia Crane, who though twelve years old must be regarded, whether in ideas or their expression, as a woman and not as a child. Constance Lindsay Skinner has done remarkable work in presenting Aztec poetry; Muna Lee made notable translations from the modern Spanish verse of South America (the June number of *Poetry* was given up to these). Marguerite Wilkinson has a book about poets and their methods, *The Way of the Makers*, and Jeannette Marks, poet and dramatist, has made, in *Genius and Disaster*, a startling study of writers, including poets, under the influence of alcohol or drugs. The award of the *Pictorial Review's* $5,000 prize for the "most original and meritorious work done by a woman" to Mrs. Edward Macdowell could be entered as news of poetry-production, for the Peterboro Colony has made it possible for not a few poets to work unmolested.

Poetry Prizes.—Besides the long list of poetry prizes won by women, Martha Ostenso won the before-mentioned Curtis-Brown Prize of $13,500 at almost the same time as the appearance of her volume of verse, and in addition the *Dial's*

$2,000 award for "notable service to American letters" was won for 1924 by Marianne Moore, a poet. Olive Tilford Dargan won the Ward-Belmont prize in Tennessee; Louise Nicholls the *Lyric* prize; Alice Hunt Bartlett, American editor of the *English Review*, has been awarded a gold medal by the English Poetry Society for her services in promoting international relations in verse. Karle Wilson Baker took the prize of the South Carolina Poetry Society, Grace Crowell that of the Poetry Society of Texas, Agnes Kendrick Gray has the Mary Austin prize, Margaret Widdemer the *English Review* prize, Leonora Speyer the Chicago prize offered by *Poetry*. These are all important competitions open to men and women. The oldest and most important magazine of verse in America continues to be edited by its founder, Harriet Monroe, whose new volume, *The Difference*, may be out by the time this is in press. One of the most distinguished of the newer poetry magazines, *Palms*, is published by Idella Purnell at Jalisco, Mexico, and Louise Nicholl is largely responsible for the high quality of *The Measure*.

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Editor, Readers Guide, Saturday Review of Literature

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DIVISION XXIV
SOCIAL PROBLEMS

FAMILY LIFE

By John M. Gillette
Professor at the University of North Dakota

Any discussion of the family for the year 1925 is bound to differ somewhat in its nature from accounts of fields of physical science or mechanics. The family is not under control as is auto manufacture or laboratory experiments. We have to wait for things to happen to the family. There are so many families that on the average we do not know what happens to them for a good while after the event. Our records are fragmentary, incomplete, and far behind a given day, month or even year. We shall speak of the family, therefore, as it seems today, as it emerges out of the recent past.

Changes in Family Type.—Our United States family appears to be of the type that prevails in occidental countries. It is monogamic in form with an apparent tendency toward term marriage and what is coming to be called the companionate. This would indicate it is in transition. We are not obliged to think that it is moving over to some other form than monogamy, such as polygamy or polyandry—but clearly within the monogamic world considerable changes are going forward. Like other institutions the family has always been in transition. We are tempted to think that the changes occurring in it are now greater or more rapid than the average. If so, we must recall that our age is one characterized by the most varied and tremendous changes in scientific, mechanical, industrial and communication fields, and that these changes in turn set in operation other shifts and changes in all areas of human society. Thus we may well allow that the family of today is being jostled by and submitted to more disturbing currents and influences than in time past.

Influences on the Family.—Of the more important of the many influences that beat upon the family institution the following are worthy of enumeration. The results of scientific discovery and technical inventions work themselves out upon the family in many ways. They take things and processes out of the home, put others into the home; they make demands on purse and attention, and may put a strain on family ties; they tend to move people out of their home life and to substitute other satisfactions for those of the old type of home. Rising standards of living apply strains and shocks to the family ties. The opportunities of employment for women outside the home may postpone marriage, or prevent it, or cause seeming neglect of children by mothers who are employed. The Woman's Movement in its many forms is changing woman's thought about family and home matters. Some women plan to subordinate males to females, others to eliminate the males entirely, others to make females equal in all matters to males. Not only is the relation of women to men to be changed, but, in the minds of some woman leaders, the disposal and care of the offspring is to be altered—perhaps nearby institutions are to care for children. The revolution in industrial lines has taken out of the home many of its economic processes. As a consequence women of the middle class who can hire household help have abundance of leisure time, which is likely to be spent outside the home and often in empty activities. The widening knowledge of birth control has affected the size of the family and resulted in a parenthood by choice. Outside agencies are bidding for the children's time and interests—such as the public schools with their many attractions and demands, playgrounds, recreation centers and the movies. Lengthening the period of formal education may not greatly affect the masses, but it postpones marriage for a considerable number. The homes of a great majority of people have been urbanized, which means that they are chiefly eating and lodging places, outside agencies being depended upon to satisfy the larger parts of the interests and attractions.

Effect on Divorce.—These and other social influences are leaving their effects upon the family of the United States, as the following facts indicate. The ratio of divorce to marriage shows a great social change. In 1889 there was only 1 marriage in every 19 that ended in divorce. In 1895 the proportion ran to 1 in about 15; in 1900, to 1 in about 12; in 1916, to 1 in about 9; and in 1922, to 1 in 7. At the average annual rate of increase between 1905 and 1922, in 1925 1 out of every 6.85 marriages would presumably end in divorce. In some counties of the nation there are more divorces granted than marriages performed. Nevertheless, the marriage rate is increasing, according to the census figures; nor is marriage being postponed on the part of the masses.

Effect on Size of Family.—The size of family is exhibiting the effects of social conditions. In 1850 there were 5.6 members per family in the nation; in 1920 there were 4.3. Much of this change is doubtless due to urban influences; yet Ross and Baber show that the average farm family has fallen from 5.9 to 4.2 children per family during a generation.

For urban populations, the physical home appears to be undergoing a change. The home of several rooms is being displaced by one much shrunken—often to one large room equipped with convertible or disappearing furnishings and a kitchenette or its equivalent. It is alleged that the wide use of the automobile is largely responsible for this change. Meanwhile the percentage of homes rented grows apace and of those owned declines.

Hopeful Signs.—Notwithstanding, the home and family is not without redeeming and hopeful features. Thus Ogden, Ellwood and others have shown that among single, widowed and divorced persons the rates of mortality, crime, insanity and pauperism are decidedly higher than among those married. It is amply demonstrated also that juvenile delinquency is largely due to conditions of broken homes. Growing numbers of parents cease to think of their offspring as economic assets and appreciate them as developing personalities. Among rural inhabitants the home is the chief social institution for providing comforts and satisfactions; and for multitudes of urban inhabitants it remains the center and support of life's activities. The automobile is making its contribution in keeping the family united for outings and vacations; and the radiophone likewise unites the family to hear programs. Multitudes of agencies are on foot to rehabilitate broken down families, to provide foster homes for homeless and neglected children, to heal the breaches between husband and wife, to stimulate beautification and sanitation of homesteads. Churches and other organizations are devoting attention to reforming the family by improving conditions at marriage and to reduce the divorce rate. There is much agitation for amending the Federal Constitution so as to provide uniform divorce laws. Since only about 25 per cent. of all divorced persons live outside the state of their marriage, it would seem that the preponderating portion of such interstate immigrants move for business and other reasons and not to secure a divorce. Far greater results could be secured by properly regulating marriage in the individual states and by training youth to understand the responsibilities of wedded life.

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ORGANIZED SOCIAL WORK

By HORNELL HART

ASSOCIATE PROFESSOR OF SOCIAL ECONOMY, BRYN MAWR COLLEGE

Reaction.—Critics of our civilization are prone to refer to the present as a "machine age," and to slur the achievements of recent decades as being confined to "material progress." That the spectacularly rapid developments of our epoch are not confined to mechanical inventions is strikingly evidenced by consideration of progress in the field of social work. Age-old humanitarian impulses have in our generation seized upon the two great tools of modern times—science and organization—and are paralleling in the field of social work the achievements which these same tools have made possible in intellectual and industrial fields. An outstanding feature of the year 1925 in social work is the accumulation of instances indicating that the rapidity of this development toward organized and scientific philanthrophy is creating a pronounced reaction in certain quarters—a reaction which, while not appearing likely to destroy the progress of the past half-century, offers a challenge and an indictment which social workers and the socially-minded public must meet if the trends toward fundamental solutions of social problems are to be carried forward in the future as in the past.

Development of National Organizations.—Over fifty years ago the National Conference of Corrections and Charities (since renamed the National Conference of Social Work) was founded by a group of leaders among the boards in charge of state prisons, reformatories, asylums and kindred institutions. They were soon joined by the Charity Organization Society group of men and women who were trying to systematize the chaotic endeavors of amateur relief societies to meet the problems of families in their homes. In the nineties the settlement workers, keen in their sympathy for underprivileged peoples in whose neighborhoods they had made their homes, came into the Conference with the plea—"Not charity, but justice." And then, in the early years of the century, came the rise of preventive social movements, national in scope, and the mounting interest in industrial conditions as causes of misery and unrest; until in 1912 through the Conference a program of minimum labor standards was formulated which was almost bodily lifted into the platform of the Roosevelt Progressives.

Meetings and Programs of 1925.—The development in social work which now holds the center of the stage is the growth of federated relationships among social agencies, a process commonly but inadequately described as the Community Chest Movement. As Paul U. Kellogg writes of the 1925 National Conference of Social Work:

> The Denver conference may thus be said to mark the tidal reach of this new organizing force in local social work—its coming to power as the charity organization and settlement groups forged to the front in their day. And here an interesting thing is to be set down. The conference division through which this group especially functioned—that of organization of social forces—was given up not to a rarification of problems of charitable finance but to the engineering of city-wide services. The shift was unmistakable; history was repeating itself. Sooner or later the basic human claims underlying all social work assert themselves, as against all questions of institutions, procedures, administrations, budgets. Under the chairmanship of Sherman C. Kingsley, whose executive leadership in Cleveland and Philadelphia has been one of the genuine assets of this newer movement, there were taken up in turn in a series of remarkable papers the range and contents of city-wide service in the fields of health, of family welfare, of recreation, of dependent children. Moreover, in the councils of the American Association of Community Organization, which met as a kindred group, the function of this national body was reconsidered and the part it can play forecast in rehabilitating local chests and federations, in bringing leading laymen in the movement in contact with men of their stamp in backward communities; and also in broadening their concern from money-raising to organized service.

Some other phases of this Conference are summarized by Mr. Kellogg as follows:

> The reëmergence of the county as an administrative unit and psychiatry as a new tool in institutional work were taken up by the division on public officials and administration. The division on delinquents and correction confirmed the mounting interest on all sides in behavior problems as did the kindred meeting of the National Probation Association. The mental hygiene division was itself rich in fresh drafts of experience; its contribution to case work in a score of fields has come to stay. There are psychologists so bold as to predict that their group will supplant the sociologists in moulding the social practice of the future, but they could not have said so with such confidence had they attended the spirited section meetings on neighborhood and community life or the related kindred group meeting. . . . The Denver meetings may be said to have staged the "come back" both of child labor and of immigration as active public questions.
>
> In the industrial field, whether the matter under discussion was that of regularizing employment, of labor's part in management, of coöperative banks and production, of labor education or of industrial hazards, there was promise that future conferences will witness the resurgence of interest in economic conditions and relations and the division committed to them.
>
> The section on children—one of the oldest of the conference—was as always one of the best attended and richest in discussion, and the same can be said of that on the family, which trenched on two of the most active issues in public concern before the conference—the migratory families and auto camps which have thrust new and baffling problems on every community in the West; and those questions of marital relations which the section discussed under the heading of the family and the law. In a sense the election of Miss Vaile was a spirited rejoinder by fellow social workers the country over to her dislodgement by the Klan governor of Colorado; but in a deeper sense it was a recognition of the fundamental contribution of the family case worker to the totality of social work. . . .
>
> In the Health Section twenty-seven papers were presented either by physicians or upon topics requiring a knowledge of health supervision on the part of the authors, a good evidence of the inseparable relation between socially-minded doctors of medicine and the other brotherhoods and sisterhoods of social work. . . .
>
> The newest comer of the conference sections was that on professional standards and education. The discussions at the five section meetings underscored the rise of morale. Analogies with other professions were resorted to much less frequently than in the past; social work, for better or worse, is standing on its own legs.

Relative to this last item the following quotation from a paper by Frances H. McLean at the 1925 meeting of the American Association for Organizing Family Social Work is pertinent:

> The year 1924-1925 in the field work of the Association shows increasing emphasis placed upon systematic, careful, philosophical training, on the need for skilled case-work service

and more of it, and increasing attention to projects which involve not only these intensive activities, but fundamental extensions of our thinking as well.

A new Training School for Jewish Social Workers has been inaugurated this year in New York City and a training school for institutional workers has opened at Dobbs Ferry.

Community Chest.—The war stimulated the development of social work not only through its Red Cross Home Service, its War Comp Community Service, and its mental testing, but also through its highly organized Liberty Loan drives. But the "drive" method of financing, as applied to federations of the social agencies in a town or city, is perhaps the most outstanding heritage of war expansion in social work.

Joint financing began in Denver in the late 80's, but very few cities adopted it until the World War. This year at least 227 cities in the United States and Canada have united their charities in federations or chests for purposes of mutual support, but chiefly to carry on the raising of money jointly from the public. The American Association for Community Organization reports that the total amounts raised by listed community chests during the past three years, ending May 31 of each year, have been as follows:

1923	$40,000,000
1924	49,000,000
1925	56,000,000

Of the urban population—in cities of over 30,000—66 per cent. is now living in community-chest cities. Of the total population, 22 per cent. may be so classified.

While Phidalelphia is the largest city yet federated in its financing of social agencies, Cleveland and Detroit have established financial federation on a firm basis of successful experience and Boston has this year been "on the brink" of adopting the plan.

Pittsburgh has this year inaugurated the chest method. New York City during the past year has advanced toward closer coöperation among its 2,000 social agencies by the organization of a new Welfare Council. A striking new development in centralized financing has been the organization of its own chest by the fur industry in New York City. This means federated giving, as contrasted with federated money-raising. The Fur Industry Chest in 1925 raised $480,000 from 1,876 individuals and firms in the trade. It is asserted that the contributions represent an increase of 30 per cent. over former contributions from the same givers.

New National Organizations.—Further evidences of the development of the movement toward more highly organized machinery for carrying on social work are the announcement by the American Association for Community Organization (which has been the national clearing-house for local community chests since 1919) that on January 1, 1926, it will progress from volunteer officers to the employment of its own full-time executive staff. Similarly, the National Council of Social Work, representing some fourteen national social agencies, has developed to the point of employing a full-time secretary. The year has shown, then, a continuation of the tendency toward more and more organization in social work—toward confidential exchanges through which social agencies share each other's knowledge of the individual family problems with which they deal, toward councils where community policies are formulated, toward joint financial campaigns and joint budgeting of needs, and toward the creation, on city-wide and then on national, bases of organizations to promote the aims involved in social work.

Methods. — Increasingly scientific methods as well as increased organization have characterized the trend. Social workers build their programs upon the study of cases—the method of dealing directly with facts and conditions as well as with theories. The case method has gained both in the technique through which individual problems are understood and treated, and in the variety of fields in which it is applied. To the methods of careful investigation and patient endeavor to understand the true needs and resources of the clients dealt with, the new psychology has added the technique of the psychiatric social worker, who is learning to readjust not merely the environment but also the mental processes of the maladjusted person. An increasing literature of case studies is growing up, based upon rigidly scientific and yet deeply sympathetic study of social misfits. The Commonwealth Fund has been financing experiments in the development and promotion of such methods in social work.

Case Work.—This covers a great variety of specialties. Visiting nursing, which began in a settlement in New York thirty-two years ago, has spread until school nurses, insurance nurses, public health and industrial nurses add their efforts to a movement which has been a powerful factor in the revolutionary reductions in death rates achieved during the past quarter century. Case work done in connection with courts and correctional institutions by probation and parole officers has grown to an exceeding bulk, including not only juvenile courts, in which it originated, but also domestic relations courts where family quarrels are unraveled and strained ties knit up again, and even extending into courts for adult offenders against the law. Relief of poverty is being developed through the swiftly growing case work of mother's allowance departments. In industry, personnel administration has adopted case-work methods in many establishments in dealing with absences, sicknesses and other problems affecting the welfare and efficiency of the employees. The public schools have been discovering the need for case workers, called visiting teachers, to go into the homes of children whose school work is being damaged by problems outside the school. Even college deans are beginning to recognize that their problems require the technique used by social workers.

Relief vs. Organization.—This growth of scientific and organized methods of dealing with social problems has been so swift that it invites a sharp reaction. Past years had already shown evidences of misunderstanding, but in 1925 the dissatisfaction of certain groups with the methods of social workers has taken new and more sensational forms. An instance has been the action of Leopold Schepp, the "cocoanut king," in asking through the press for advice on how to use his millions, stipulating that he was not interested in existing institutions or in organized charity. A kindred instance is the following, taken from an article in the *Literary Digest* for August 29, 1925:

> William J. Conners of Buffalo and West Palm Beach, Florida, recently announced the creation of a fund of $1,000,000 which is to relieve distress immediately, without red tape, without respect to creeds. . . . Mr. Conners, who climbed from stevedore to wealth and power in the business and political life of his State, . . . expects to increase the fund to $5,000,000. The foundation will be exclusively for the people of Buffalo. . . . It will be independent of any other charitable activity; it will relieve first and investigate afterwards. . . . "It was undoubtedly the observation—if not the actual experience—of Mr. Conners that is often hedged about with so much administrative machinery that it loses much of its sweetness by the time it reaches its beneficiary," remarks the Schenectady *Union Star*, adding: "Elaborate office staffs and card indexes are all very well in their way, but the quality of mercy is not strained through a card index."

Restoration Policy.—This urgency toward immediate and untrammeled relief as the chief object of "charity" presents a fundamental conflict with the ideals of modern social work. The Charity Organization Society movement was based originally upon the idea of service rather than relief—"Not alms, but a friend." The permanent restoration of the dependent family to self-support and self-respect rather than a mere temporary relief of emergency needs has been the goal set. This ideal has been reiterated during 1925. Instance the following excerpts from the *Survey*, for October 15, 1925:

> Maurice J. Karpf, for six years superintendent of the Jewish Social Service Bureau of Chicago, has created a new kind of report which he calls a Social Audit. . . . Probably the most courageous feature of this fearless "audit" is its attitude toward relief. We have grown complaisant these last few years on this subject. Everything has conspired to make us so: the socialization of medicine, mother's pensions, industrial compensation, the rising standard of living, the short-sighted nature of much social work publicity have all driven us to the granting of larger and still larger amounts of relief. Against this tendency, Mr. Karpf's "audit" is a ringing protest. He sees more clearly, probably, than a

> worker among non-Jewish clients could discover, the demoralizing effect of much of our relief giving; a great deal of his work during the six years he was with the Chicago society was to discover and use methods for correcting this evil. . . .
>
> His primary defense, however, against relief giving is case work; case work done by trained, competent and experienced case workers, carrying not too great a load.

That greater experience in social work means decreasing relief is indicated by an investigation in Minneapolis:

> In the Minneapolis Family Welfare Association, it was possible to make a study covering two years' experience, during which time all district secretaries were replaced. This study showed that in the six months following the change of a district secretary the district spent on the average eight thousand dollars more in relief than normally, or than it did either before the change or after the district secretary got hold of her job.

To this attitude of social workers toward relief, growing though it does out of prolonged, expert and sympaethetic dealing with problems of poverty, the trained social worker not only has not converted the general public, but has in many cases failed to convince even the boards of directors supposedly closely in touch with the work. This divergence of opinion is certain to provoke continual friction and misunderstanding until fuller comprehension is achieved.

Access Methods.—This need for fuller comprehension social workers have by no means ignored. Outstanding features of the 1925 National Conference of Social Work were a competition to select the playlet most effective as a means of getting across to the public social problems and social ideals, and the presentation of a play on the subject of unemployment. The All-Philadelphia Conference of Social Work organized this year a highly effective conference and exhibit on "Every Child in Philadelphia." Skillful publicity has been a prominent subject under discussion by social workers in 1925.

Charitable Finance.—Not only the question of relief but also the new methods of financing social work seem to be provoking a growing restlessness in certain sections of the public. Joint financial drives were intended to eliminate the annoyance of repeated solicitation but the success of the method—raising as it has unprecedented sums of money for charitable purposes—has stimulated the initiation of drives by great varieties of organizations not included in the federations or "chests." Many social agencies note an increasing difficulty in raising funds, or complain that financial resources are not expanding rapidly enough to meet the growing demands which have been stimulated, at least in part, by the new methods of financial campaigning. A number of campaigns have failed to raise the amount called for in the budgets of the member agencies, placing them in serious dilemmas. In Philadelphia, the deficiency in the amount raised in the fall of 1924 resulted in the adoption of the policy of refusing to accept more cases than the incomplete budget justified. The 1925 campaign, however, was the most successful in the history of joint financing in Philadelphia. In the five years of welfare drives in Philadelphia the amount raised has increased from less than two million to over three million dollars.

In Columbus, Ohio, the Family Agency wished in 1925 to undertake only as many cases as it could deal with adequately with its limited funds, while the officers of the Community Fund wished to have some attempt made at service in behalf of each applicant. As a result of this conflict (together with other complicating factors) the Family Agency has been excluded from the fund for 1926.

National vs. Local Agencies.—Certain national agencies who have to raise funds in cities where there are chests find that the refusal of the chests to include them acts almost as a blacklisting of these agencies with many givers. Other social workers note that the chest method increases the domination of social work by business men. On the other hand many social workers feel that the business man has raised the level of efficiency in the federated agencies and that joint financing has undoubtedly resulted in more adequate budgets and staffs.

Another type of reaction against the social work movement is illustrated by the statement made by Bishop Charles Fiske in the American *Mercury* for August, 1925, to the effect that one of the worst pests in America to-day is the welfare movement, and that "no one could possibly estimate the harm that has been done to all movements for social betterment by the paid uplifter."

Federal Action.—A reverse felt keenly by workers for better labor legislation has been the Supreme Court decision in October, invalidating the Arizona Minimum Wage Law and with it all such laws in the United States except that of Massachusetts.

The at least temporary failure of the child labor amendment (dealt with more fully in another section of the *Year Book*) reflects among other things distrust of organized regulation of and interference in family life.

Attitude toward Criminals.—Perhaps more emphatic than any other symptom of reaction against the methods in vogue in organized social work has been the recent agitation relative to crime. The Loeb-Leopold trial in Chicago served to focus attention in a spectacular way upon the psychiatric approach to criminal problems. The popular impulse toward severe punishment of a cold-blooded and horrible crime was thwarted, according to the views of the ordinary man, by the interference of certain paid experts. The fear that social work will interfere with the severity of punishment is reflected in such newspaper statements as that of the Detroit *Free Press*, suggesting that legislation against armed bandits "should be backed up in a manner making it impossible for a sentimentally inclined parole official to pardon one of this class and turn him loose again to prey on society, as is now too often the case." Social work concentrates its efforts upon the salvage of the individual, believing that through that method society also will be best protected; public sentiment has shown signs of demanding the protection of life and property regardless of the welfare of the offender. The Chicago and Cook County Bankers' Association offered last summer a reward of $2,500 to any police or bank officer who killed a thug while engaged in bank robbery; the reward offered for information leading to mere arrest and conviction was only $1,000.

Emphasis of Social Work.—Social work is changing its fundamental emphasis. It is coming to recognize as its goal the release of human purposes, so that those who are thwarted through conflict within themselves and with the purposes of their fellows may be given the opportunity to function joyfully in ways that can be built into a rising structure of social purpose. Thus conceived, social work has a far wider task added to the mere granting of food to the hungry and clothing and coal to the shivering. It has the problem of the development of human relationships toward fuller life for all. The acceptance of this ideal does not involve a decrease in the determination to relieve the world's suffering; rather it means an intense resolve that sympathy shall become increasingly effective, and that the social aspirations of humanity shall not defeat themselves through short sightedness, but shall issue in genuine and increasing achievements of welfare for mankind. It was in the truest spirit of modern social work that William J. Norton, in his presidential address to the 1925 conference, upheld love as the mainspring of social work, as the "thin film of protection between the wheels of life which lubricates them and keeps the whole machine from being burned out in the merciless friction of living," as the force which "lifts man from the plane of the beasts and stretches his stature upward until he can see and hear God."

RECREATION

By L. E. Bowman
Secretary, National Community Center Association

Interest.—Recreation is taking on more extensive forms, public and private. Evidences have multiplied in recent months that a good time is an accepted part of life, not only to be taken as it comes along and enjoyed, but to be planned for by the individual, his community, the state and even the nation. More consciously than ever before municipalities are providing recreation areas before increasing population fills up the vacant spaces. New York State has created a council on parks that is seeking the acquisition of available land to be held if necessary a generation before a growing population needs it and to be utilized only for the relaxation and recreation of its present and future citizens. The National Recreation Congress heard demands more specific and insistent than ever before that government—national, state, municipal—provide for and on behalf of the whole people, and at public expense, "that which so vitally affects the quality of its citizenship." Perhaps the developments of automobiles and other modern devices are taking people out of their homes more and sociability is taking on a more extensive character; probably too leisure time is increasing and giving many of all classes more opportunity to be sociable.

Facilities.—The recreation facilities are made available for the year round more than in previous years, according to the figures published by the Playground and Recreation Association of America. The recognition of the place of outdoor play has been very strikingly shown in the plans of many of the real estate projects that have come into being in answer to the housing shortage. Playgrounds, playfields, even community houses have been made integral parts of large developments undertaken each by one man or firm. The national organization has printed ten fundamentals for real estate, emphasizing the opportunities in the hands of home planners, the economy in the long run, and the credit for provision of play spaces that will be given to those who plot communities, fundamentals that have been agreed to and signed by many real estate dealers.

State and city recognition of recreation responsibility has lately taken a definite form in the "Home Rule" bills enabling cities to secure year round recreation systems under existing municipal bodies or under a Recreation Commission or Board which might be created and to appropriate funds for the work. Twenty-one states now have these Home Rule laws, twelve of them with referendum features. Some of the laws include a provision allowing any two cities, towns, counties, school districts jointly to establish and conduct such a system. A tax levy may be made by the commission or other authority.

Practicality.—Together with the more universal acceptance of play as a normal function to be provided for, there seems to be more of a business-like attitude toward it, and a common-sense rather than propagandist flavor to the statements of its organizers. The Woman's Division of the National Amateur Athletic Federation of America has been very active in the coördination and stimulation of athletics for girls and women. Its platform contains significant planks dealing with: the need of physical activities for all members of groups rather than for a chosen few, protection of athletics from exploitation for the enjoyment of the spectator, stressing of enjoyment of the sport rather than winning, discouragement of sensational publicity; women directors of athletics, medical examinations and the conservation of health through physical activities, appropriate and sensible costumes, discouragement of gate receipts and travel. The Women's Division is helping greatly to set standards for girls' activities, especially through its handbook with rules, and separate pamphlets on some activities. It is becoming more comprehensive in scope and groups affected.

Ages and Sexes.—The tendency of the last few years has developed to make the playground and all recreation activities serviceable to as many as possible, eventually all classes, all age groups, both sexes. Diversification is seen in the establishment of more and different winter sports, swimming, wading, recreation centers, community drama, music forums, motion pictures, etc. Kenneth Clark of the National Bureau for the Advancement of Music made a study of municipal music, finding in 762 cities an expenditure of $1,254,481.17. In addition public school music totaled in costs $3,621,008.82. The Playground and Recreation Association is helping to stimulate the movement through a committee on Municipal Music. Music memory contests and national music weeks have grown in number, as have singing groups, community bands, harmonica bands, ukelele classes, children's symphonies and barber shop quartettes. Interest in community drama has taken shape in numbers of drama groups and drama tournaments, institutes for the training of volunteer workers and in dramatic activities on the playground, in the centers, etc.

This tendency to an all-round program is seen in the increase in golf provided under municipal auspices, showers for children put up in city streets, training in home play, provision of facilities especially adapted to foreign speaking groups and of special games in public parks, cricket, bowling on the green and racing of exquisite boat models under rigid and complex rules. There are several studies in progress.

Moral Effect.—Long ago it was said and it seems to be said more often, in more quarters, and more fervently every year, that recreation prevents delinquency. Instances are cited although conclusive studies are not available, probably because of the many factors involved and the difficulty of tracing effect of recreation on a mass of growing and usually migrating children. However, every new book of the many new ones on psychology, education or child training brings added general confidence in the educational values in play and the great potentialities as yet undeveloped in this direction.

The workers in play activities have taken the matter seriously and are tackling the psychologist and sociologist on their own grounds. They are demanding scientific analysis of the character-developing virtues of play and games. The terms are vague and the technique of study as yet embryonic but the process of analysis is wholesome and the contact of practical worker and academic mind is beneficial to both. The aims professed are the finest, such as "to insure the full all-round development of the individual, and the complete manifestation of his capacity, to develop attitudes—which will enrich personality and which will be most worthwhile in carrying over values as the girl becomes the woman." A representative committee is at work formulating a study of the effect of play activities in the development of character traits aided by advice from certain university men.

A Civic Service.—The advocacy of playgrounds may have begun largely as an effort at betterment and reform by the few of and for the many, but the recreation movement today including playgrounds is becoming a general tendency, a mass effort, civic in its characteristics rather than charitable. "Get acquainted with the politicians and handle small details with them" is repeated this year to the Recreation Congress. Get all recreation under public control and support it with taxes, is the slogan of the protagonists of this work. True commissions are urged by private citizens to stimulate and watch public officials, but the aim is clearly public administration. Combined public and private administration shows up in the yearly statistics. Playgrounds are urged and are being put more and more under school supervision. Committees of recreation workers more generally than in other social enterprises include both public and private officials.

Labor has officially endorsed recreation efforts. President Green has vigorously advocated playgrounds and other general forms of play, and the American Federation has urged the matter to locals. Thirty state federations have passed resolutions in favor of more recreation facilities, especially those municipally furnished.

A further development somewhat in this general direction is the National Contest for Playground Beautification which is being conducted by the Playground and Recreation Association, awards given by the Harmon Foundation to encourage the beautification of America's playgrounds. A total of $4,650 in prizes is offered for competing playgrounds making greatest progress from October 6, 1925, to November 1, 1926. The avowed purpose is to make the playground a civic asset, desired by the taxpayer and citizen. Plantings of trees and shrubbery to form a buffer for sight and to some extent hearing are suggested.

RESULTS OF QUESTIONNAIRE ANSWERED BY 1,113 CITIES
(Playground, Vol. 19, No. 1, April, 1925.)

Total number of play areas under paid leadership (711 cities)	8,115
Areas open the year round (530 cities)	1,701
“ “ summer months (633 cities)	3,626
Total number of play areas open in 1924 for the first time (231 cities)	635
Total number outdoor playgrounds (652 cities)	5,006
Open the year round (145 cities)	862
Total average daily attendance of participants (471 cities)	881,500
Total acreage of outdoor playgrounds (364 cities)	9,580
Total valuation of outdoor playgrounds (179 cities)	$43,099,459.97
Total number of outdoor playgrounds open in 1924 for first time (168 cities)	444
Total number of playgrounds for colored children (58 cities)	133
Indoor Recreation Centers	
Total number indoor recreation centers (193 cities)	1,763
Open the year round (76 cities)	489
Total average daily attendance (81 cities)	66,110
Total valuation indoor recreation centers (26 cities)	$13,458,389.00
Total number indoor recreation centers open for first time in 1924 (34 cities)	155
Total number indoor recreation centers for colored citizens (37 cities)	46
Community Houses	
Total number community houses (123 cities)	288
Open the year round (100 cities)	240
Total valuation community houses (25 cities)	$ 2,659,544.00
Total average daily attendance (44 cities)	23,850
Total number of community houses open for the first time in 1924 (7 cities)	7
Total number of bathing beaches (154 cities)	293
Bathing beaches open for first time in 1924 (5 cities)	7
Total average daily attendance (54 cities)	57,551
Total number of golf courses (95 cities)	131
Total average daily attendance (22 cities)	8,713
Total acreage golf courses (31 cities)	4,752
Total valuation of property (17 cities)	$ 3,128,576.00
Courses open in 1924 for the first time (5 cities)	6
Total number summer camps maintained in connection with recreation program (83 cities)	123
Total average daily attendance (28 cities)	5,034
Total acreage camp property (22 cities)	1,121.5
Total property valuation summer camps (11 cities)	$ 87,800.00
Athletic fields (439 cities)	1,330
Tennis Courts (410 cities)	4,865
Quoit Courts (247 cities)	2,327
Swimming Pools (272 cities)	626
Places for Water Sports (215 cities)	458
Skating Places (266 cities)	1,076
Ball Fields (460 cities)	2,522
Total number of employed workers (711 cities)	15,871
Men workers	6,577
Women workers	9,294
Total number of workers employed the year round (300 cities)	2,783
Cities reporting work supported by municipal funds	302
Cities reporting work supported by private funds	195
“ “ “ “ “ municipal and private funds	199
Total expenditure for recreation purposes (662 cities)	$20,052,558.02
Total amount issued in bonds for recreation purposes (28 cities)	$11,801,817.54

CHILD WELFARE

By C. C. Carstens

Executive Director, Child Welfare League of America

Child Labor Amendment.—During the past year the most outstanding event was the submission by Congress of the Child Labor Amendment to the States that were holding legislative sessions. It came before forty-three legislatures and was ratified by both houses in only four States. It may be ratified by other States at later sessions of the same legislatures, for the amendment is still legally pending.

Although no progress in combatting child labor was made through federal legislation during the year there has been marked legislative improvement in various States, the outstanding achievements coming in Michigan where the school superintendent was given power to institute a system of child accounting and can require that the child's records be sent after children who have left a particular school district, in Wisconsin where the Industrial Commission has been granted power to pass regulations regarding agricultural child labor in certain industries, and in Pennsylvania where new regulations on industrial home work have been passed, and school attendance has become compulsory for children from eight to sixteen during the entire school year.

Child Type Census.—The Bureau of the Census has announced some advance statistics. During the first six months of 1923 a census of various types of children was taken. During that period in the census of delinquents it was found that 945 juveniles under eighteen were admitted to prisons and reformatories and 2,445 to jails and workhouses. The previous census to gain similar facts in 1910 showed that about 10,000 were correspondingly in the last group. In 1910 2,345 children under sixteen were admitted to penal institutions, while in the first six months of 1923 only 283 were admitted to them.

In the census of dependent children, on February 1, 1923, 192,156 children were reported in various institutions for children, and 68,779 under care of the child-placing agencies. In addition 130,000 children were reported as being aided through Mothers' Assistance Funds in their own homes.

Legislation.—Out of the mass of legislation passed by the many legislatures in session the following are the most essential forward steps:

In a number of States non-support, desertion and abandonment statutes have been strengthened. In Massachusetts no order for support has previously been binding for more than two years. This year the period has been lengthened to six years and no civil proceeding is now a bar to prosecution under penal law. In New Mexico, North Carolina and South Carolina there has also been improvement in some statutes. In Indiana, Iowa, Ohio and Oklahoma laws for probation have been improved.

In Pennsylvania an adoption law which seems a very good piece of legislation has been passed, as well as a measure for licensing and regulating infant boarding homes caring for children under the age of three.

In Michigan a five-day period has been established between the application for and the issuance of a marriage license.

Louisiana, Rhode Island, Vermont, and Hawaii have been added to the States working in coöperation with the United States Children's Bureau under the provisions of the Maternity and Infancy Act, making a total of forty-three States and Hawaii.

In New York a series of laws was passed very much improving the legal status of children born out of wedlock.

Minnesota passed a law providing for placement by the State board of children hard to adjust in free homes; a Children's Bureau was authorized by the Legislature of Iowa, a Department of Public Welfare was organized out of the union of two state agencies in California. The Bureau of Child and Animal Protection of Montana was modified so as to eliminate the work for animals, and the President signed a law passed by the Federal Congress providing for the use of probation in the various Federal Courts.

Child Welfare Organizations.—The Chief of the United States Children's Bureau attended the session of the Child Welfare Committee of the League of Nations, in Geneva, May 20-27, 1925. This Committee was organized as one of two committees by the League's Advisory Commission for the Protection and Welfare of Children.

Additional interest has been aroused in both the physical care and social development of crippled children. Fraternal orders and civic and luncheon clubs have been particularly active in their behalf, and an International Society for Crippled Children, with headquarters at Elyria, Ohio, has been organized.

Early in the year the 25th Anniversary of the first juvenile court and the 15th Anniversary of the first psychiatric clinic were celebrated in Chicago. The psychiatric clinic movement has continued to hold the interest of many communities. Child guidance or psychiatric clinics have been opened in Philadelphia and the University of Virginia through coöperation with The Commonwealth Fund of New York, and other clinics have gotten under way in Evanston, Illinois, in the State Industrial Schools of Massachusetts, and in a number of other places.

The Commonwealth Fund's project of extension of visiting teaching has also led to ten of the cities where the demonstration period was completed to continue the visiting teacher as a regular feature of the public school system.

A Conference was called in New York during the year for the purpose of strengthening the Mothers' Assistance Laws in the various States, under the auspices of the Child Welfare Committee of America, attended by delegates from at least forty-four States.

A National Training School for Institution Executives and Workers opened October 1st, under the auspices of the Children's Village at Dobbs Ferry, New York.

Birth Registration.—The Birth Registration Area was increased by the addition of West Virginia, which now includes thirty-three States, and the Death Registration Area includes forty-one States.

Trends in Child Welfare.—Several trends in child welfare, whose beginnings date further back, have during the past year become more pronounced. Among these the following are noted:

A broader application of social case work principles to the care of individual children, whether in family homes or in institutions; the wider use of individual family boarding homes for child-care and the correspondingly smaller use of free home placement of children; the reëxamination of the functions of institutional care and family home care for both dependents and delinquents; the use of both methods by certain agencies after having made careful diagnosis of the needs of each child; the emphasis on saving the child's own home, through reconstructive action or preventive measures rather than rushing into court or social action for the removal of the child.

CHILD LABOR

By Owen R. Lovejoy

General Secretary, National Child Labor Committee

Proposed Constitutional Amendment.—In 1924 Congress adopted what is known as the Federal Child Labor Amendment, which reads as follows:

> "Section 1.—The Congress shall have power to limit, regulate, and prohibit the labor of persons under eighteen years of age.
>
> "Section 2.—The power of the several States is unimpaired by this article except that the operation of State laws shall be

suspended to the extent necessary to give effect to legislation enacted by the Congress."

In 1925 this amendment was before the legislatures of forty-three states for such action as they chose to take. It was ratified by three (previously also by Arkansas) and rejected by twenty-two, which was more than a fourth of the states, and therefore ensured rejection. In the other states the matter did not come finally to either ratification or rejection by the action of both houses.

The General Counsel of the National Association of Manufacturers appeared to lead the opposition but the Editor of the *Southern Textile Bulletin* developed the most effective propaganda against it, successfully organizing the farmers in opposition through the so-called Farmers' States Rights League.

State Legislation.—Child labor was discussed more in 1925 than in any previous year. From schools to churches, from afternoon semi-social parties to meetings of political organizations, speakers pro and con appeared everywhere. School debates on the amendment are still going on. The people have had an opportunity to learn about the subject as never before.

The widespread discussion undoubtedly had an effect in arousing the people to a sense of their responsibility on the one hand and in giving them a more or less clear understanding of what is held to be reasonable protection on the other. For the year 1925 was marked by legislative improvement in a number of states.

California placed the burden of proof upon the employer and improved her law as to children working in theatrical and vaudeville entertainments.

Connecticut abolished certain exemptions to her night work prohibition in bowling alleys, and established a 58-hour week for women and minors under sixteen.

District of Columbia made school attendance compulsory between seven and sixteen during the entire session except those over fourteen who had completed the eighth grade.

Georgia established a fourteen-year age minimum for enumerated employments; a sixteen-year age minimum for certain enumerated dangerous occupations; prohibited night work from 7 P. M. to 6 A. M. for children under sixteen; provided for a work permit based upon proof of age, ability of the child to read and write; required a physician's certificate of physical fitness for that particular employment.

In Michigan the State Superintendent of Public Instruction was given power to institute a system of child accounting, and as a result of this records of children are transmitted from one school district to another.

New Mexico established a fourteen-year age minimum during school hours by abolishing a necessity exemption; established a sixteen-year age minimum in certain specific occupations dangerous or hazardous; established an eighteen-year age minimum in mines and quarries; established an eight-hour day, and a forty-four-hour week for all children under sixteen.

New York established a forty-four-hour week for children under sixteen employed in certain occupations.

In Pennsylvania, by ruling of the Industrial Commission, the requirements for license for the employment of children were extended and certain forms of work prohibited except in the immediate families, and appointment of some person by the employer as his representative in the home.

Tennessee made a physician's certificate of physical fitness for the particular employment a prerequisite for a work permit.

Texas established an eight-hour day and prohibited night work for children under fifteen.

In Wisconsin the Industrial Commission was given power to pass regulations with respect to the employment of children under sixteen at certain agricultural work, as cherry orchards, beet cultivation, etc.

Wyoming strengthened materially her law in regard to certain prohibited employments for persons under sixteen.

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SOCIAL HYGIENE

By Ray H. Everett

Editor, "Journal of Social Hygiene"

Signification.—Social hygiene, as it has become accepted generally in the United States, has both a broader and narrower significance than is given it in England and on the Continent. In those countries it is thought of as dealing with a broad group of maladies to combat which many research and propaganda agencies have been formed. In recent practice, however, the trend is toward a broader interpretation of the subject and in England, especially, social hygiene is being employed to denote the special sex problems of health and morals connected with life in civilized communities. The recent change in name of the British National Council for Combating Venereal Diseases to the British Social Hygiene Council is indicative of an expanded program. In the United States its connotations are limited to problems dealing with and growing out of sex relations, which, medically at least, confine its activities to the discovery and development of measures to control and prevent the venereal diseases.

Though thus limited in a medical sense, however, the field of social hygiene in this country has come to embrace the study of a far broader series of acts and conditions which bear directly on the welfare of the family and the home. Such problems, for instance, as marraige, divorce, illegitimacy, prostitution, and other forms of sex delinquency—these and their like which tend to sustain or destroy our basic social relationships —now are considered definite and proper questions to be investigated and, where possible, adjusted by the agencies working in this field. Many of these problems would exist if there were no so-called venereal diseases, although oftentimes they are aggravated and made more difficult of settlement through the presence of these diseases. Further than this, social hygiene in its positive aspects aims to reach, not only those who might otherwise become immoral, but every individual. Sex education should be a natural, logical part of the life-training program of all.

Early Agitation.—The earlier stages of the movement in this country were marked by the forming of several organizations, all having the general purpose of bettering social conditions, but each seeing its own program as of greatest importance. Perhaps the best grouping of the three major bodies of opinion would be: first, those whose primary object was to treat and cure the venereal diseases by medical measures; second, those who were affronted by the commercial prostitution which prevailed so widely and waged their fight by means of legal measures; and third, that group who were bent mainly on securing wholesome, accurate, character-training education for all—particularly for youth. In the early years of this century various members of these groups commenced to think more and more in terms of a broader program which would include the best features of all of their individualistic plans and would unite the forces working toward a common end. This realization of the desirability of and necessity for a farseeing, comprehensive program to meet the many and various problems which are inherent in this field resulted in the merger of the several most important voluntary agencies in 1914 and the formation of the American Social Hygiene Association.

Venereal.—At this time the most urgent phase of the movement was the combating of the venereal diseases. Clinics were few and far between; many physicians refused to treat persons infected with these diseases; quacks flourished and the public was inclined to be either apathetic or antagonistic. Most of these handicaps were due to a failure to distinguish between the public health aspect of syphilis and gonorrhea and the moral issues involved. To many people the sufferer from a venereal disease was merely a victim of his own folly, whereas public support and appropriations could be enlisted more readily for fighting other plagues. This being so, it was natural for national, state, and local health officials to hew to the line of least resistance and make their major efforts in fields where they were certain of sympathy from their taxpaying constituents. Less than ten years ago it was the exception rather than the rule to find a hospital where venereal-disease patients might find refuge.

Administration.—To note all the progress in the social hygiene field would require volumes, but an enumeration of some of the outstanding facts is most encouraging and promising for the future. In the Field of Public Health, Medical and Nursing Measures, bureaus or divisions of venereal diseases have by now been established in practically every state and large city in the United States. In no other public health field has there been a more general and rapid official recognition of the needs for special work. Laboratory facilities have been provided by most of the states and cities to meet the need of free diagnosis and as aids to clinical supervision of cases. Treatment and drugs have, likewise, been made available without cost to those in very limited circumstances. The increase of from fewer than 200 clinics in 1916 to more than 800 at present is a notable one. Research has been promoted to determine new and better ways of diagnosing, treating, and following up cases, and nursing and social service activities are being extended to the venereal diseases and increasingly recognized as essential parts of the program for their control.

There still are a number of persons in this country who believe that segregation and medical regulation of prostitution is the best method for dealing with it, but so strong a preponderance of public opinion now demands the suppression of prostitution that the latter may be considered the settled policy in the United States.

Legal Measures.—Vice surveys and studies of laws and law enforcement have been made in the typical population centers of the United States, some of which are being continuously followed up to check the dependability of the findings. Repression of commercialized prostitution has become the course pursued in the United States, and the "red-light" districts together with municipal toleration of open vice have virtually disappeared. Laws and ordinances have been greatly strengthened both as to dealing with prostitution and in the control of the venereal diseases. An important beginning has been made in devising better administrative machinery for law enforcement. A glimpse can be gained of some of the legislation which has occurred during the last year and which is related directly or indirectly to social hygiene when one reads that Regulation 19 of the Ohio Sanitary Code has been amended so as to insure the reporting of cases of venereal disease; that the passage of the Copeland-Graham Probation Bill in the United States permits the Federal Courts to place young offenders on probation; that the Injunction and Abatement Bill was passed in West Virginia and Rhode Island; and that Louisiana has joined the ranks of states requiring a physical examination as a prerequisite to the issuance of a marriage license. Public recognition of the necessity for legal measures in this field is general but, for all this, volunteer agencies cannot yet reduce their efforts in the United States to the extent possible in the medical field because our public authorities are not equipped with the funds or personnel to carry out a program comparable to the official medical measures now in operation.

Educational and Character Training Measures.—The opposition to sex education often comes from those who do not understand either its content or its technic, but the sex taboo is going and those most responsible for the education and training of the young—educators, teachers, parents, social and religious workers—are promoting studies of sex social problems and facing the responsibility of aiding the youth of the country toward a sounder sex adjustment in life.

Present activities in this aspect of social hygiene include the integration of proper sex education into the routine courses of higher institutions of learning. The some caution, sureness of ground, and demonstration of practicability before advancing any proposals, which have characterized the development of the whole social hygiene program, mark the efforts in education. Those educational leaders primarily responsible for it agree absolutely that the home is the best starting place for sex instruction and that parents, if equipped, are the ideal persons to give it. They agree further, however, that sex education, as a normal phase of character education as a whole, is a progressive process which should cover the period from earliest childhood through maturity and beyond. In this process all agencies which have to do with the education and training of the individual must play their parts. Schools, colleges, and churches must build upon and supplement the work of parents. As for instruction in matters of sex as a grade-school activity —here, as in the higher institutions, sex instruction must come as a normal feature of broader subjects. Until parents and educators have been brought to the point of action along sound lines in this field, volunteer agencies must bear the burden of progress as they have in the preceding phases of the movement.

Protective and Recreational Measures.—With the study of commercialized prostitution and the successful fight against it there has come a realization that the protection of young people in danger of becoming sex delinquents is a vital link in the armament against both prostitution and the venereal diseases. The safeguarding of play and amusement facilities whether they be commercial or free; the work which policewomen and visiting teachers carry on: in fact, the protective supervision of the community's youth in general for the prevention of sex delinquency should be woven into the social hygiene pattern.

The protection of youth should receive even greater attention than the rehabilitation of sex offenders because a stronger effort directed toward protection would ensure fewer offenders. Most young people are readily influenced by their environment, either toward clean, wholesome living or the reverse according as that environment is good or bad. Past emphases in this field have been on detention and rescue homes, reformatories, and other rehabilitative facilities rather than on measures which would tend to make such facilities less essential. The trend of protective measures today, however, is toward cleaning up, and keeping clean, the environment rather than neglecting it; toward the appropriation of more public funds for the prevention of delinquency rather than the use of these funds for salvaging projects. Toward this end the states are promoting legislation for physical education; policewoman courses have been established; prizes are being offered for the greatest progress in playground beautification; salacious literature is being attacked from every quarter; "keeping-fit" essay contests are being held in the schools; social organizations are providing better and safer homes for working girls in crowded cities; and every effort is being expended to protect youth.

Social Hygiene an International Problem. — Taken geographically, throughout the Western Hemisphere there is a considerable measure of agreement on many features of the social hygiene movement. With a few minor exceptions the program of Canada is similar to that of the United States, and many features of this broad scheme have been adopted in Central and South America. The All-America Conference on Venereal Diseases and Social Hygiene held in Washington, D. C., December, 1920, under the auspices of the American Red Cross, the United States Public Health Service, and the American Social Hygiene Association brought together leaders from all the Americas and resulted in the locating and development of many common ground basic principles for work. During the past year, as in other years, exchange visits have been made between countries for the purpose of studying social conditions, and the international aspects of the problem of venereal disease control and the so-called "traffic" in women and children are being given more attention than ever before.

SELECTED BOOKS ON SOCIAL HYGIENE

ADDAMS, Jane.—*A New Conscience and an Ancient Evil.* N. Y., Macmillan, 1912. From long experience and from authoritative data Miss Addams discusses, sanely and frankly, questions which eternally confront civilized society. Her suggestions for solutions are eminently just, pertinent, and sympathetic.

BIGELOW, Maurice Alpheus.—*Sex Education.* N. Y., Macmillan, 1919. An admirably sound and rational book, dealing with the meaning, scope, problems, and methods of sex-education; value and dangers of sex books; special instruction for preadolescents; bibliography.

CADY, Bertha Chapman, and CADY, Vernon Mosher.—*The Way Life Begins.* N. Y., American Social Hygiene Association, 1917. A simple, scientifically accurate book for parents and teachers on the beginnings of plant, animal, and human life. Illustrated with colored plates.

CHAPMAN, Mrs. Woodallen.—*How Shall I Tell My Child?* N. Y., Revell, 1912. Shows the mother how to answer in the simplest manner the early questions of her children concerning the origin of life.

FLEXNER, Abraham,—*Prostitution in Europe.* N. Y., The Century Company, 1914. A refutation of segregation and reglementation.

GALLICHAN, Walter M.—*A Textbook of Sex Education for Parents and Teachers.* Boston, Small, 1921. Especially valuable because it includes chapters on instruction for adolescent boys and for adolescent girls.

GALLOWAY, Thomas Walton.—*The Biology of Sex. For Parents and Teachers.* Boston, Heath, 1913.

Deals especially with the methods and spirit of sex instruction and its biological, social, and moral foundations.

Galloway, Thomas Walton.—*The Father and His Boy.* N. Y., Association Press, 1921. Sex training made wholesome and effective through democratic comradeship between father and son.

Galloway, Thomas Walton.—*Love and Marriage. Normal Sex Relations.* N. Y., Funk & Wagnalls, 1924. The various elements, biological, social and sexual, which make up a successful and happy married life.

Galloway, Thomas Walton.—*Sex and Social Health.* N. Y., American Social Hygiene Association, 1924. Analyzes modern sex-problems and presents the best contributions of thought and scientific study devoted to them. Thorough and well-balanced, rich in practical methods of procedure—especially valuable to teachers and leaders of young people.

Gray, Arthur Herbert.—*Men, Women, and God. A Discussion of Sex from the Christian Point of View.* N. Y., Doran, 1923. Association Press, 1923. An inspirational discussion of the problems of sex from the churchman's point of view, but based, in general, on sound scientific principles.

Gruenberg, Benjamin Charles.—*Parents and Sex Education. Children Under School Age.* N. Y., Am. Soc. Hygiene Assn., 1923. An explanation of the nature and psychology of the child for parents of children under school age, with a statement of the principles and methods of educating the child in the matters of sex.

Gruenberg, Benjamin Charles.—*High Schools and Sex Education.* Prepared under the direction of the Surgeon-General, U. S. Public Health Service, in collaboration with the U. S. Bureau of Education. Wash., U. S. A., 1922. Manual of suggestions on education, related to sex, based on work done by high school teachers. Contains practical suggestions from many sources. Bibliography.

Gulick, Luther Halsey.—*The Dynamic of Manhood.* N. Y., Association Press, 1917. Supplements Exner's *Rational Sex Life for Men* on the philosophical side.

Gulick, Luther Halsey.—*A Philosophy of Play.* N. Y., Association Press, 1920. The ripened conclusions of the greatest American exponent and innovator of recreation, written from twenty years' first hand experience.

Hood, Mary G.—*For Girls and the Mothers of Girls.* Indianapolis, Bobbs-Merrill, 1914. Presents the facts of life for girls and their mothers in a simple, dignified way. Recommended for public and school libraries.

March, Norah Helena.—*Sex Knowledge.* N. Y., Dutton, 1922. Information for the general reader on questions of sex.

March, Norah Helena.—*Towards Racial Health. A Handbook on the Training of Boys and Girls. For Parents, Teachers, and Social Workers.* N. Y., Dutton, 1918. Covers the field of practical sex education, laying equal emphasis on the biological approach and on ethical considerations.

Miller, Hugh Crichton.—*The New Psychology and the Teacher.* N. Y., Seltzer, 1922. Valuable for its presentation of the child's emotional development during the early years, and suggestions for wise guidance.

Moore, Harry H.—*Keeping in Condition. A Handbook on Training for Older Boys.* N. Y., Macmillan, 1919. Sex hygiene is made an integral part of a general program of physical training for boys in their teens. Recommended for public and school libraries.

Royden, A. Maude.—*Sex and Common Sense.* N. Y., Putnam, 1922. Discusses, with an inoffensive frankness, the part sex must play in the life of the well-balanced individual. Essentially spiritual, yet not apologetic for the physical.

Snow, William Freeman.—*Venereal Diseases. Their Medical, Nursing, and Community Aspects.* N. Y., Funk & Wagnalls, 1924. A non-technical discussion of cause, spread, treatment, cure and prevention of each of these diseases, and social hygiene questions which relate to them.

STOKES, John H.—*The Third Great Plague. A Discussion of Syphilis for Everyday People.* Phila., W. B. Saunders Co., 1917. Not a work on diagnosis and treatment, but an accurate presentation of the social, medical, and ethical aspects of syphilis, seeking prevention through education.

MENTAL HYGIENE

BY GEORGE K. PRATT

ASSISTANT MEDICAL DIRECTOR, NATIONAL COMMITTEE FOR MENTAL HYGIENE

PROGRAM

Rest and Control.—Following the close of the war, leaders of the official mental hygiene movement took steps to capitalize the psychiatric gains of that period and incorporate them into an expanded program. This program on a nation-wide scale was designed closely to parallel accepted public health practices in other fields of preventive medicine. To achieve this it first became necessary to crystallize into definite policies certain activities heretofore regarded merely as significant trends. Also it became necessary to shift the emphasis of certain tendencies to other aspects of the mental hygiene problem. These matters more or less satisfactorily disposed of, mental hygiene entered upon a renaissance that already has placed it well to the fore of the country's great public health movements. Outstanding among its policies and assuming definite shape is the larger dedication of a major part of its activities to the prevention of mental diseases and to the preservation of mental health.

Present Concepts of Mental Disease.—Gradually since 1919 has come a clarification of former medical concepts of mental diseases. The present tendency is to recognize the mentally sick person as a *whole* human being and not just an impersonal sort of "case," constructed of two distinct units;—a separable mind and a separable body. Modern medicine tends to disregard anatomical boundary lines and to insist that the sufferer from mental illness have study given as much to his personality, his frustrations, his prejudices and his desires as to his liver, his heart or his digestion.

Dr. C. Macfie Campbell, Professor of Psychiatry at Harvard Medical School and Director of the Boston Psychopathic Hospital, portrays the current psychiatric concept of mental disease as follows: "Mental hygiene is not concerned merely with those serious forms of mental disorder which require treatment in State hospitals; it is concerned with those other forms of mental disorders which do not necessarily mean the removal of the individual from his ordinary social environment. A disorder is a mental disorder if its roots are mental. A headache indicates a mental disorder if it comes because one is dodging something disagreeable. A pain in the back is a mental disorder if its persistence is due to discouragement and a feeling of uncertainty and a desire to have a sick benefit, rather than to put one's back into one's work."

FEEBLEMINDEDNESS

New Concepts.—Until a few years ago the consensus of medical and lay opinions held that the feebleminded were few in numbers; that they were all potential menaces to the community; that they invariably owed their mental defect to heredity; and that the only satisfactory solution to the problem they created lay in their lifelong institutional segregation. Among nearly all psychiatrists today feeblemindedness (a defect or arrest of intelligence as contrasted to the emotional impairment in "insanity") is recognized as a widely distributed condition. No state has as yet made an accurate enumeration of all the feebleminded within its borders. It is known, however, by repeated surveys that at least 2 per cent. of the public school population of any given community is below the average intellectual intelligence. Fernald estimated after careful comparisons, that in Massachusetts—a state of approximately three and a half million persons—there were at least 50,000 feebleminded. Similar percentages have been estimated for New York State.

ACQUIRED MENTAL WEAKNESS

Newer and recent discoveries in other branches of medicine have disclosed the percentage of accidental or acquired cases of feeblemindedness to be much larger than was once thought. Thus birth injury, due to unavoidable accident or to careless obstetrics, plays a not insignificant role in the causation of later intellectual arrest. So also does the onset of infectious disease during the early months of infancy. Scarlet fever, whooping cough, infantile paralysis, and perhaps most of all, now that it is being more readily recognized, "sleeping sickness" (encephalitis lethargica) may, and often do, result in feeblemindedness in children with no demonstrable ancestral taint. Fernald and others credit these "accidental" causes with producing 50 per cent. of all cases of mental deficiency.

Character.—It has also been amply demonstrated that not all, by any means, of the feebleminded are "bad" or community menaces. Fernald states that less than 10 per cent. of all mental defectives are inherently vicious and that the other 90 per cent. are not unduly troublesome. Experiments in special institutions demonstrated that with proper training, a majority of the feebleminded can be educated to the limit of their stunted intelligence and then taught a simple trade or occupation prior to being returned to their communities. There, under moderate supervision, they become loyal, hard-working and law-abiding citizens, capable of partial, if not complete self support. The inherently vicious 10 per cent., known as defective delinquents, will always require strict institutional care.

Sterilization. — Present psychiatric tendencies also reject surgical sterilization as a solution to any but a relatively few types of cases. This attitude is based on the knowledge that approximately only half of all cases are due to a defective germ plasm, and that existing information is not sufficient to enable anyone to detect in most instances which are inherited and which are acquired defects. Moreover it is believed that while sterilization may solve a fractional part of the problem (for those cases obviously due to defective heredity) it is likely to create serious new problems in rendering more easy the spread of venereal disease through increased prostitution.

JUVENILE DELINQUENCY

Concepts.—In this field, too, many new concepts are being accepted by a growing number of socially-minded courts and judges. These concepts revolve around a fundamental realization that children who commit anti-social acts are not necessarily led to do so by such abstract and conventional urges as original sin or sheer cussedness, but rather by some motive that to them appears necessary if the integrity of their personalities and their need for individual expression is to be preserved. As a result of this belief many juvenile courts since 1919 have availed themselves of the services of psychiatrists in endeavoring to uncover the basic reasons for the anti-social acts that commonly bring young culprits before them.

Examination of Prisoners.—From time to time in the past studies have been made of the mental condition of inmates of jails and prisons. The most thorough study of this kind made up to the present time was undertaken in 1922 by the National Committee for Mental Hygiene. The survey included individual psychiatric, physical and social examinations of 1,228 prisoners confined in thirty-four county jails and penitentiaries in New York State. The survey staff consisted of three units each in charge of a Director who was an experienced psychiatrist, assisted by a score of other psychiatrists, psychiatric social workers and psychologists.

A summarized report of their findings follows:

Sixty-six per cent. of the persons examined were recidivists, i.e., had been arrested previously, the arrests numbering from two to fifty.

Seventy-seven per cent. were psychopathological individuals of well recognized types.

Twenty-two and nine-tenths per cent. were found to be normal (i.e., free from recognized mental abnormalities.)

7.6 per cent. were definitely feebleminded.
5.4 per cent. were borderline feebleminded types.
7.2 per cent. were "dullards."
42.2 per cent. had psychopathic personalities.
1.5 per cent. were psychoneurotics.
0.9 per cent. were epileptics.
7.3 per cent. were "insane."
4.5 per cent had definite personality defects.

ESTABLISHMENT OF CLINICS

The Habit Clinic was created in Boston, in 1922, by Dr. Douglass A. Thom for children of pre-school age (i.e., from two to six years). At these clinics Dr. Thom assisted by a trained staff of psychiatrists, psychiatric social workers and psychologists examine certain children who are "problems" because of the manifestation of one or more habits that may be classified into three groups: (1) Those undesirable habits connected with the organic life of the child (but for which no physical pathology can be found) such as faulty, finnicky eating, faulty sleep broken by night terrors, bedwetting, elimination, sex habits, and others. (2) Habits associated with personality deviations such as excessive daydreaming, temper tantrums, fearfulness, belligerency, shyness, or with anti-social habits of lying, stealing, truancy, and the like. (3) A group of motor habits including peculiar mannerisms, tics, muscular jerkings, etc. It is among such displays, when habitual and excessive, that the genesis of much adult maladjustment, nervous disorder, or even frank mental disease has been found to come.

Child Guidance Clinics.—Another psychiatric agency assuming an important place in modern social work is the Child Guidance Clinic. Two of these are in operation at this writing: one in Cleveland and the other in Philadelphia. Each is engaged in a two-year demonstration of what a properly organized psychiatric clinic may be expected to contribute to the social work, the court practice and the educational facilities of a community. These clinics were made possible by a grant from the Commonwealth Fund administered through the technical staff and resources of the National Committee for Mental Hygiene. The first demonstration clinic was established in St. Louis in 1922. Since then demonstrations (usually for one year) have been conducted in Memphis, Minneapolis, St. Paul, Los Angeles, as well as in Cleveland and Philadelphia, where current demonstrations are being carried on on a two-year basis.

Child Guidance Clinics accept for diagnosis or treatment certain children up to sixteen years of age who are in need of psychiatric attention because of some personality deviation or some emotional maladjustment. The clinics coöperate intimately with courts, schools and social agencies from which many children are referred. It is also significant that in each city where a Child Guidance Clinic has been established a large number of parents bring their children for examination without first passing through one of the agencies mentioned above.

NEW TREATMENT FOR MENTAL DISEASE

Malarial Treatment for Paresis.—Two outstanding discoveries in the field of treating certain types of mental disease have been announced in recent years. Both of these affect one disease in particular, namely, general paresis. The so-called malarial treatment of paresis as elaborated by White of St. Elizabeth's Hospital in Washington, by Bunker and Kirby of Manhattan State Hospital, New York, by Solomon of Boston and other research workers, appears to consist essentially in the intravenous inoculation of the patient with a tertian-strain of malaria inducing the characteristic symptoms of this disease. These symptoms are critically observed and after reaching a certain degree of intensity (as denoted by clinical and blood study) are checked by the administration of quinine and sulphate in carefully calculated doses.

The beneficial results obtained by the malarial treatment of paresis are assumed to depend on the formation of non-specific immune bodies, the presence of which renders the host less habitable for the spirochætes. Various hypotheses are offered concerning the nature of the destructive effect this treatment exerts on the trypanosomes of syphilis. Sufficient time, however, has not yet elapsed to study the subsequent course of treated patients, and until this can be done the value of the malarial treatment of paresis cannot permanently be established.

Tryparsamide.—The second of the two therapeutic discoveries referred to is a chemical one. Late in 1919 a group of research workers consisting of Doctors Lorenz, Loevenhart and Hodges entered on a study of the treatment of syphilis of the central nervous system with a view to the development and use of drugs. As a result they worked out a form of therapy for early general paresis and other types of neurosyphilis that utilizes tryparsamide and mercuric salicylate. For purposes under discussion Lorenz uses tryparsamide in doses of three gm. dissolved in c.c. of sterile freshly distilled water, and injected intravenously at one week intervals for eight weeks. Three days before the tryparsamide, mercuric salicylate in one grain doses is administered intramuscularly. A total of nine such injections alternated with eight injections of tryparsamide comprise a course of treatment. From six to eight courses usually are given to secure clinical improvement.

Development of Psychiatric Social Work.—Psychiatric social work is the branch of social case work that deals with cases of social maladjustment in which a mental factor or a behavior problem is of primary importance. The wide range between the social problems arising in connection with acute mental disorders (so-called insanity, etc.) and those involved in milder personality maladjustments and faulty childhood habits have resulted since 1920 in considerable divergence in emphasis in various psychiatric social work positions.

Although five years ago the number of trained psychiatric social workers was almost negligible, at the present time there are about 350 psychiatric social workers, more than half of whom are thoroughly trained. The most important developments in the last five years have been the establishment on a permanent basis of the courses in psychiatric social work given at the New York School of Social Work, and the Smith College School for Social Work. Other schools have in the past few years inaugurated courses in mental hygiene, but have not undertaken to train students specifically for immediate work in the psychiatric social work field.

SOCIAL WORK IN THE CHURCHES

BY HERBERT N. SHENTON
PROFESSOR AT COLUMBIA UNIVERSITY

National Organizations. — Within recent years social work in the churches has been marked by a widening of the scope of the activities by national organizations, some outstanding coöperation between Catholic, Jewish and Protestant groups, the development of interdenominational work among Protestant bodies, the adoption of several new statements of social faith by Jewish and Protestant bodies, and by an increasing emphasis upon research as a basis for social action.

Within the Catholic church, the department of social action of the National Catholic Welfare Conference has made significant contributions by the holding of an annual Catholic Conference on Industrial Problems and by issuing statements to the press on public questions. In these statements there has been an opportunity at times to apply the comprehensive body of social teaching of the Catholic Church to present day issues. This department has headquarters at 1312 Massachusetts Avenue, N. W., Washington, D. C. The chairman is the Right Reverend P. J. Muldoon, Bishop of Rockford. The directors are Dr. John A. Ryan and Dr. John A. Lapp. The director of the Bureau of Rural Life is Dr. E. V. O'Hara, whose office is in Eugene, Oregon.

Catholic Conference on Industrial Problems.—The third annual meeting of the Catholic Conference on Industrial Problems was held in Chicago, June 24-25, 1925. The program consisted of presentations and discussions of the following topics: "The Labor Injunction," "The Present Position of Working Women," "Conciliation and Arbitration," "Insurance of Employees." The Catholic Conference on Industrial Problems was established in Chicago late in 1922. Since then, two meetings have been held, one in June, 1923, at Milwaukee, and the other in May, 1924, at Pittsburgh. These meetings have the purpose of discussing industrial questions in the light of Catholic social teaching. Though still in its infancy, the Industrial Conference gained the friendship and confidence of both employers and labor leaders. The fairness of the program, the way in which all sides of every question under discussion are given a hearing, and the lively and intelligent handling of the questions from the floor of the Conference have convinced everyone in attendance at the meetings held thus far that the Catholic Conference on Industrial Problems has carved a place for itself.

The Conference lays emphasis upon Pope Leo's Encyclical on the Condition of Labor. The members and the formal speakers so far have all been Catholics. Bound together by this tie, and a common acceptance of the teachings of Pope Leo's Encyclical, they have been able to go ahead to determine for themselves by open discussion what its instructions mean in American industry. There is no thought in the Conference of forcing any specific view upon any of the members or committing the Conference itself to any definite platform. The Conference is forbidden by a clause in its own Constitution from voting upon any question of industrial policy.

Department of Social Action.—During recent months typical releases of the Department of Social Action were summarized as follows in the *National Catholic Welfare Conference Bulletin:*

"The comparative productivity and costs in the building trades were investigated by the United States Bureau of Labor Statistics and a résumé of this investigation was published by the Social Action Department. The investigation revealed the fact that the widespread credence given to the statement that building labor is inefficient, as compared with former years, is entirely unfounded in fact.

"'Perverting the Sentiment of Patriotism' is the title of a Social Action Department news sheet. The news sheet warns against two societies, active at the present time, whose real aim, hidden under pseudo-patriotic and popular phraseology, is opposition to industrial reform. Their ostensibly patriotic purposes are revealed for what they are in their actual performances and in the personnel of their officers. According to the news sheet, 'every movement in which they take an active part, aims at the stabilization of economic abuses. The majority of their officers are, directly or indirectly, the beneficiaries of economic injustice.'

"The people of the United States are responsible for the less than living wages received by the maintenance of way employees on our railroads. The Social Action Department calls attention to a little pamphlet called 'Is It Just and Reasonable?' which contends that the annual wage of $880 paid maintenance of way employees is not a living wage, and that the Railroad Labor Board, the instrument of the people, in this field, is responsible and should remedy the condition."

Rural Life Bureau.—The Rural Life Bureau is of service to rural parishes and organizations which deal with rural problems. Its program as developed reveals a wide range of interests and the application of Catholic social teaching to a variety of rural problems. The Bureau is interested, for example, in promoting a Christian view of land tenure; the promotion of a wide diffusion of land ownership and of easy access to land by bona fide operators, the coöperative movement, with safeguards against becoming merely capitalistic; development of the electrification of the farm home, avoidance of unsuitable work for rural women and children, reinforcing the religious bond with the social bond, the integration of education and religion, employment of dramatics and chorals.

Central Conference of American Rabbis.—The Social Justice Commission of the Central Conference of American Rabbis presented in 1925 a "program of social justice" at the convention of the Union of Hebrew congregations and its affiliated organizations—the National Federation of Temple Brotherhoods. In presenting the program, the leader of the group, Rabbi Louis Woolsey, said that "the entire development of Judaism, from its earliest beginnings down to our very day, has been a clarion call to an entire humanity to follow justice through to every concrete application." The program as adopted was as follows:

1. More equitable distribution of the profits of industry.
2. Minimum wage which will insure for all workers a fair standard of living.
3. The legal enactment of an eight-hour day as a maximum for all industrial workers.
4. A compulsory one day of rest in seven for all workers.
5. Regulation of industrial conditions to give all workers a safe and sanitary working environment, with particular reference to the special needs of women.
6. Abolition of child labor and raising the standard of age wherever the legal age limit is lower than is consistent with moral and physical health.
7. Adequate workmen's compensation for industrial accidents and occupational diseases.
8. Legislative provision for universal workmen's health insurance and careful study of social insurance methods for meeting the contingencies of unemployment and old age.
9. An adequate permanent national system of public employment bureaus to make possible the proper distribution of the labor forces of America.
10. Recognition of the right of labor to organize and to bargain collectively.
11. The application of the principles of mediation, conciliation and arbitration to industrial disputes.
12. Proper housing for working people, secured through government regulation when necessary.
13. The preservation and integrity of the home by a system of mothers' pensions.
14. Constructive care of dependents, defectives and criminals, with the aim of restoring them to normal life wherever possible.
15. Freedom of speech.
16. Federal legislation against lynching.
17. Liberal immigration laws and Americanization provision.

Rabbi Horace J. Wolf of 117 Gibbs Street, Rochester, New York, is secretary of this commission.

National Council of Congregational Churches.—The National Council of Congregational churches, at its sessions in Washington in October, 1925, adopted a statement of social faith prepared by its Social Service Commission. This is a long document, and states what the teachings and ideals of Jesus mean if translated into certain human relations: for example, into industry and economic relationships, education, agriculture, racial and international relations. Some of the more significant declarations of this statement are as follows:

"That the church of Christ as an institution should not be used as an instrument or an agency in the support of war.

"A permanent association of the nations for world peace and goodwill, the outlawry of war, and the settling of all differences between nations by conference, arbitration, or by an international court.

"That the cost of market distribution from farmer to consumer shall be cut to the lowest possible terms, both farmers and consumers sharing in these economies.

"The elimination of racial discrimination, and substitution of brotherly treatment for all races in America."

The office of the Social Service Commission of the Congregational churches is 14 Beacon Street, Boston.

Statement on Twelve-Hour Day.—An outstanding instance of coöperation between social work departments of different faiths was furnished by the joint statement on the twelve-hour day in the steel industry, issued by the Social Action Department of the National Catholic Welfare Conference, the Social Justice Commission of the Central Conference of American Rabbis, and the Commission on the Church and Social Service of the Federal Council of Churches. The issuance of this statement, calling for the abolition of the twelve-hour day in the steel industry, was influential in securing the favorable action of the American Iron and Steel Institute.

Federal Council of Churches.—The Commission on the Church and Social Service of the Federal Council of Churches (105 East 22nd Street, New York City) serves to coördinate the work of the departments and commissions of most Protestant bodies in the field of social service. It conducts a service bureau to give assistance to local churches in studying their problems, in making surveys, etc.; it conducts community and industrial conferences which aim at the promotion of a better understanding between employer and employed; it has a committee on child welfare which coöperates with the Child Welfare League which has employed a secretary who gives his time to serving the churches; it has stimulated interest in work for delinquents and prisoners and has made a study of various aspects of church service to delinquents; it worked to secure the ratification of the Child Labor Amendment; and prepares annually a Labor Sunday Message for use in the churches.

National Denominational Organizations.—Among National Denominational organizations engaged in social service are the following:

Board of Temperance and Moral Welfare of the Disciples of Christ, Occidental Building, Indianapolis.

Commission on Social Service of the Congregational Churches, 14 Beacon Street, Boston.

Church League for Industrial Democracy (Episcopal), 6140 Cottage Grove Avenue, Chicago.

The Commission on Christian Social Service of the Protestant Episcopal Church, 281 Fourth Avenue, New York.

Methodist Federation of Social Service, 156 Fifth Avenue, New York City.

Department of City Work, Methodist Board of Home Missions, 15th and Arch Streets, Philadelphia.

Commission on Social Service and Rural Work of the Reformed Church in the United States, 14th and Race Streets, Philadelphia.

Social Service Commission of the Universalist Churches, 176 Newbury Street, Boston, Mass.

Department of Social Education, Baptist Publication Society, 1701 Chestnut Street, Philadelphia.

Various boards of home missions as well as various departments of the national Y. M. C. A. and Y. W. C. A. regard social service as a function of their work.

Institute of Social and Religious Research.—In social research the outstanding developments are the formation of an adequately financed Institute of Social and Religious Research and the expansion of the program of the Department of Research and Education of the Federal Council of Churches. The Institute of Social and Religious Research (370 7th Avenue, New York) was formed in January, 1921, for the purpose of conducting and disseminating results of scientific research and surveys in the socio-religious field. Many surveys have been made by the Institute but increasing stress is being laid upon research studies calculated to yield more exact and penetrating methods of analyzing social data and to show underlying factors and general trends. It is not a service agency though it counsels with organizations desirous of undertaking social studies and surveys.

While it is organically independent it frequently coöperates with educational, religious and governmental agencies. Several of its studies have extended into foreign countries. Monetary grants have been made to a few significant national and international agencies promotive of coöperation among religious and educational bodies, particularly in the mission field. Among the projects thus far undertaken are: the rural church in typical counties; church surveys of St.

Louis and Springfield, Mass.; the World Missionary Atlas; oriental race relations on the Pacific Coast; a basic inquiry into character education; theological education (whites and negroes); moral and religious factors in twenty-four colleges and universities; changes in habits and institutions in a small city since 1890; Christian literature in Moslem lands; a preliminary inquiry regarding social research in China; studies in Negro Contacts, and American agricultural villages.

Information Service.—The Department of Research and Education of the Federal Council of Churches (105 East 22nd Street, New York City), issues a weekly Information Service which consists of reviews of current material on race and international relations, urban industry and agriculture, and on the work of religious organizations doing social work. It is regarded by students in various fields as one of the most reliable sources of case material in social ethics. It is published on a subscription basis at $2.00 a year and is being used by over 5,000 ministers, teachers, and social workers. It is sent to the religious press and to editors of a selected list of daily newspapers and journals.

Courses and Publications.—The Department has issued other studies including study courses and a series of research bulletins. The last two publications are entitled: "Social Aspects of Coöperative Marketing" and "The Prohibition Situation." The last named was published serially in several hundred newspapers and five hundred editorials in city papers were published about it. This report was not intended as a survey of the entire field but took "soundings" of data commonly appealed to by "wets" and "drys" and made an impartial appraisal of available data. An appraisal was also made of national prohibition enforcement. It is regarded by many competent students as the outstanding piece of social research during the past two years and has had a wide acceptance. Its influence has exceeded any other study in this field since the publication of the steel strike report of the Interchurch World Movement.

INDIVIDUAL HOUSING

By James Ford

Executive Director, Better Homes in America

Purposes.—Better Homes in America is a national organization which through local committees aims to help American families to a knowledge of the ways in which housing conditions can be improved, and wholesome home life may be made available to all. Its aims may be summed up briefly as follows:

1. To put knowledge of high standards in house building, home furnishing and equipment, and home life within the reach of all citizens.

2. To arouse interest in the building of sound, attractive, economical single-family houses in which private home life may be possible; to encourage the reconditioning and remodeling of old houses and to encourage thrift for home ownership.

3. To promote general study of the housing problem and of problems of family life; to demonstrate each year the best types of house construction, home furnishings, and labor-saving devices for homes which are within the reach of families in moderate circumstances.

4. To encourage instruction in home economics and home life in the public schools and wherever advisable the construction of school practice cottages through which the girls and women of the community may receive continuous instruction in the ways of improving home life, and making household activities easier.

5. To promote the improvement of house lots, yards, and neighborhoods.

6. To extend knowledge of the ways and means of making home life more attractive and happier through the development of home music, home play, home art, and the home li-

brary, and to encourage special study and discussion of the problem of character building in the home.

Organization.—The Better Homes organization was founded by Mrs. William Brown Meloney in 1922 following a suggestion made by the late President Harding. It was reorganized on a national basis as an educational corporation for the public service in 1923.

Volunteer local committees act under the direction of national headquarters and annually demonstrate to their communities higher standards in housing and home-making, keeping always in mind that it is the family of modest means which the organization is seeking primarily to assist. During 1925, the movement reached to every part of the country and to Hawaii and Alaska. Two thousand American cities, towns, and rural communities, through local committees, brought this educational work to a higher degree of usefulness than during any preceding campaign. Each spring a week is set aside for simultaneous demonstrations all over the country of "better homes."

Model Houses.—Atlanta, Georgia, and Santa Barbara, California, shared in the award of 1925. In Atlanta special care was taken to arrange for educational work among the native white population, among the large negro element, and among those immigrants whose knowledge of American standards of housing and home life was slight. One home of four rooms, costing $2,150 and furnished for $750, was designed for occupancy by a negro family, the demonstration being in charge of a negro sub-committee. The apartment for an immigrant family was in a remodeled two-family house. Two school practice apartments were shown, one in an institution for negro girls, the other in a high school for white pupils. A fifth home was demonstrated, by a six-room frame house in good Colonial style, based on plans published in the *Plan Book of Small Houses*, a pamphlet prepared by the Better Homes Architects. The house cost $6,750; the attractive well-planted plot on which it stood was valued at $2,000. It was thus well within the reach of a family with an income of $3,000 to $4,000 a year.

Thousands of people visited these houses during Better Homes Week. Visitors were led through each house by hostesses who explained its advantages and distributed booklets containing lists of the furnishings of each room, with their costs and suggested annual budgets. An important feature of the Atlanta demonstration was a Home Builders' Clinic —a committee of bankers, builders, architects, and others—who could be consulted by prospective home-owners without charge.

In Santa Barbara also widespread coöperation was sought and secured from local organizations. The principal demonstration home contained six rooms on its one floor, well arranged. The lot was carefully planned and planted, and was valued at $2,212. The house itself cost $6,109. This house was furnished at a cost of $1,592. Each article of furniture was listed, with its price, in a booklet distributed to visitors.

Another home was of three rooms, built at a total cost of $1,544.90, and attractively furnished for $394.67, a total of under $2,000 for a family of very limited income.

A unit of three homes in one was built on a steep hillside, one dwelling on the street level, another above and back, and farther up the hill was a third, detached from the other two. The lower building containing two dwellings cost $6,360. The upper residence cost $2,100.

Another demonstration house was a five-room brick-veneer house valued at between $6,000 and $7,000, exclusive of the lot. Another was a four-room house built of adobe, the brick being made on the lot. It was valued at about $6,500.

School Practice House.—The Port Huron, Michigan, Better Homes Committee demonstrated a school practice house, built on city land as part of the regular school equipment, to be used as a permanent center for training girls in home-making methods. The Junior High School students carried out the whole project themselves, under the guidance of their teacher of civics. The Board of

Education appropriated $5,000 to build the house, and the students followed every detail of construction, after their plans were modified and approved by architects and a contract for the construction awarded. Committees of pupils chose the decorations and furnishings for the house. Very comprehensive educational programs were conducted during Better Homes Week in Port Huron, in addition to the demonstration of the house itself.

In fully 2,000 communities the local committees arranged for lecture and discussion programs on small-house architecture, furnishing the home, household equipment, home gardens, selection of books for the home library, or arranged contests for improvement of kitchens, living rooms, or for the beautification of home grounds and gardens. In addition to the promotion of local demonstrations, the National Headquarters of Better Homes in America through its contact with government departments and national organizations is able to provide local committees with information on any phase of the housing problem and the titles of publications which would be useful to them in coping with their local housing problems.

During the year 1925, the National office has prepared and distributed an illustrated *Guidebook* for the use of its chairmen, a *Plan Book of Small Homes*, a pamphlet on *Home Music and Home Play*, and has revised and reprinted an illustrated pamphlet of the U. S. Department of Commerce entitled, *How to Own Your Home.* To promote the instruction of school children in the art of home-making, the Research Department has issued a pamphlet entitled, *School Cottages for Training in Home-Making.*

SOCIALISM

By Algernon Lee

Educational Director, Rand School of Social Science

CHARACTERISTICS

Origin.—Modern Socialism dates from about 1848. Small in its beginnings and slow in its early growth, it endured severe persecution in many countries and steadily spread over the civilized world. By the beginning of this century it has become in Europe a power that had to be reckoned with. Although the Great War seemed for a time to have shattered its organization and was thought by many to have discredited its theories, it has since assumed even greater importance than it had in 1914.

Basis.—Socialism is to be regarded, not primarily as a theoretical system or scheme of social reorganization, but as a class movement growing out of the facts of capitalist society, which has developed a body of theory and a program to meet its needs. It comes into existence wherever there arises the system of large-scale machine production, with its tendency to concentration of wealth and to division of society into classes of capitalists and wage-workers. It is essentially a movement of the wage-working class, though supported by many individuals not of that class. It aims at the establishment of economic liberty, international peace, and social harmony through abolition of private ownership and control of socially necessary means of production and distribution, and the substitution therefor of public ownership and democratic administration, with production for use instead of profit.

Political Aspect.—Socialism is a political movement. Its conception of political action is a broad one, however, education and organization of the masses for self-reliant and intelligently directed use of the power of their numbers being held essential, while the winning of office is only a means to an end. Socialists do not regard political action, in the ordinary sense of the term, as sufficient; along with it must go the activity of labor unions, of coöperative societies, and of educational and cultural organizations.

Socialism is international because the capitalist system is international. It is, however, organized in national bodies, each autonomous in its field, all linked together through periodic international congresses and through the International Socialist Bureau, with its headquarters at Zurich, which do not exercise a binding authority over the affiliated parties, but have a strong directing and coördinating influence.

Socialism and Communism.—In earlier times these two words were often used interchangeably. Thus, the *Communist Manifesto*, written by Karl Marx and Frederick Engels in 1848, has always been regarded as an authoritative statement of the Socialist position. The words now designate two distinct and even hostile movements. Communism, as represented by the Communist parties of Russia and other countries and by the Communist International, with its headquarters at Moscow, originated as a "left wing" tendency within the Socialist movement during and immediately after the war, and resulted largely from the peculiar nature of the Russian revolution. Socialism is fundamentally democratic and seeks to achieve its aims by lawful and peaceable means wherever possible. Communists reject democracy in theory and practice, advocate the so-called "Dictatorship of the Proletariat," and hold that socialization of industry can be effected only by violent revolution. Wherever a Communist party exists there is constant and bitter conflict between it and the Socialist party.

ORGANIZATION

Party Names.—Socialist parties do not bear the same name in all countries. In Germany and several other countries the party is known as Social Democratic, in Belgium, Great Britain, Ireland, Australia and elsewhere as the Labor party. Readers of the American press must be warned that the French party commonly referred to in the dispatches as the "Radical Socialists" is not a Socialist party at all, "Socialistic Radicals" being the correct translation; also that the "Christian Socialist" party of Austria is definitely anti-Socialist as well as anti-Semetic.

Marseilles Congress.—The latest International Socialist congress was held at Marseilles in August, 1925. It concerned itself chiefly with the effort to assure world peace. While holding that only the socialization of industry in all the principal countries can, by eliminating the rivalry among national capitalistic interests, definitely put an end to the danger of war, yet Socialists consider that this danger can be minimized by reducing armaments, by making diplomacy open and subjecting it to the control of public opinion, by taking all occasions to promote mutual understanding among different peoples, and striving for amicable adjustment of each dispute as it arises. They rely above all on the organized working people to push this policy. The Marseilles Congress sharply criticized the League of Nations as it now exists, but hailed the Locarno Pact as a step in the right direction, and saw in the League a germ from which a real league of free peoples may be evolved.

BY COUNTRIES

Argentina.—The Socialists now have 18 seats out of 158 in the lower house and two in the upper. At the city election in Buenos Aires this year they got 57,000 votes out of 170,000, a gain of 8,000. The party has 10,000 dues-paying members.

Australia.—The Labor party increased its strength at the state election in New South Wales, held in May, and in Tasmania the following month. It has now a majority and controls the government in every state except Victoria. In the parliamentary election for the whole Commonwealth, which took place in November, the Labor vote was largely increased; but the new compulsory voting law brought out so many conservative stay-at-homes that the Labor party lost two of its former 29 seats.

Belgium.—The parliamentary election in April gave the Labor party 820,000 votes (39 per cent. of the total), as compared with 672,000 at the preceding election. The party now has 79 of the 187 seats in the lower house and 59 out of 153 in the upper, as compared with 68 and 52 in the old parliament. No party or combination of parties has been able to conduct the government without Socialist coöperation; the ministry formed in the early summer, and still in office at the close of the year includes Emile Vandervelde and four other Socialists.

Canada.—At the election held in October the Labor party gained nothing, but kept the two seats it already had in the Dominion parliament.

Chile.—A presidential election was held in 1925, at which the Labor candidate polled 71,000 votes out of 171,000. It is likely, however, that he received many votes which do not properly belong to the Labor or Socialist movement.

Czecho-Slovakia. — Socialism suffered a setback at the parliamentary election in November. In 1920 the total Social Democratic vote was 2,497,000. Since that time the Communist schism greatly weakened the movement. This year the Social Democrats polled 1,042,000 votes and the Communists 931,000. There are 48 Socialists and 42 Communists in the new parliament.

Denmark.—The Socialists are the largest party in the Danish parliament, though they have not a majority. In coalition with some other democratic and progressive elements they control the government, with the Socialist Theodor Stauning as premier.

France.—The parliamentary election of May, 1924, gave the Socialists 1,700,000 votes and 101 seats in the chamber. No party has a majority, and no coalition has been able to hold power without the consent of the Socialists. They drove Millerand from the presidency and overthrew the ministry of Poincaré. They gave their support to Herriot as premier, but preserved the independence of the party by not permitting any of its members to enter the Cabinet. Since the fall of Herriot the political balance has been unstable, and many expect a dissolution and new elections. The municipal elections in May, 1925, and the departmental elections in July brought very large Socialist gains, and the organized membership has been greatly increased within the last year.

Germany.—The first president of the German republic, the Socialist Friedrich Ebert, died early in the year. At the election which was held in March to choose his successor the Social Democratic candidate, Otto Braun, polled 7,798,000 votes out of a total of 26,856,000. There are 130 Socialists among the 485 members of the Reichstag. The German Socialists vigorously combat the Communists on the one hand and the Nationalists on the other. In domestic affairs they have been concerned largely with the defence of existing labor legislation against the attempts of the reactionaries to take advantage of the economic depression and force down labor standards. In the matter of international relations, they insist that Germany must fulfill its obligations under the peace treaties, while coöperating with the Socialists in other countries to obtain a revision of these treaties.

Great Britain.—The last general election, held late in 1924, increased the voting strength of the Labor party from 4,348,000 to 5,551,000, but reduced its representation in parliament from 191 to 151, out of 615 in all. This was due partly to the unusually large total vote, the habitual stay-at-homes mostly voting Tory, and partly to the fact that many former Liberals supported the Conservative candidates. It is again the leading opposition party, with the Liberals holding third place. The municipal elections in the summer of 1925 gave the Labor party large gains, both in the popular vote and in the number of members of municipal bodies. An outstanding fact in recent Labor party history is the adoption by an overwhelming vote, by the party conference at Liverpool in October, of a resolution definitely excluding Communists from membership.

Holland.—Parliamentary elections were held in July. The Social Democratic Labor party polled 706,000 votes and won 24 seats out of 100 in the lower house, as against 668,000 votes and 20 seats at the preceding election. The party is waging a lively disarmament campaign.

Japan.—Since the extension of the suffrage by the new electoral law a Labor party has been organized in Japan, but it has as yet had no opportunity to test its strength.

Latvia.—At municipal elections held in February and March the Social Democrats increased the number of their city councillors from 18 to 31. At the parliamentary election in October the Socialist vote rose from 242,000 to 260,000 and the representation in parliament from 31 to 33, out of a total of 100.

New Zealand.—The parliamentary election in November was unfavorable to the Socialist cause, the Labor party electing only 13 of its candidates, instead of 17 as before.

Sweden. — The Socialist premier, Hjalmar Branting, died in February, but was succeeded by another Socialist, Rickard Sandler. An outstanding achievement of his administration has been the reduction of the army by about one-third. The Socialists aim at complete disarmament, but not having a clear majority have not yet been able to carry their point so far.

Switzerland.—Both the municipal elections in the spring of 1925 and the parliamentary election in October gave considerable gains to the Socialists. Their representation in the national assembly rose from 43 to 49, out of a total of 198 seats.

Eastern and Southern Europe.—Under the Communist dictatorship in Russia, the Fascist dictatorship in Italy, that of Horthy in Hungary, and equally arbitrary régimes in Bulgaria and Rumania, there is little opportunity for the normal functioning of the Socialist movement on either the political or the industrial field. Many of the leading Socialists of these countries are in prison and many more have been driven into exile. The party nevertheless maintains its existence and strives as it can for the reëstablishment of political liberty.

United States.—This is one of the few countries in which Socialism as an organized movement is now weaker than it was at the close of the war. This is explained partly by the discouraging effect of the Communist schism, but largely also by peculiar economic conditions prevailing here. Concentration of wealth was for some years checked by "war prosperity," giving a new lease of life to small business men and temporarily restoring the opportunity for the working man to rise out of his class instead of having to rise or fall with it. Only when the tendency to concentration again becomes obviously strong can a rapid growth of Socialism again be expected. In the election of 1924 the Socialists joined with numerous labor unions and other elements in supporting the candidacy of the late Senator La Follette, hoping thereby to bring about the formation of a labor party somewhat on the British model. This hope was not realized. As the votes cast by Socialists cannot be distinguished from those cast for the same ticket by others, and as there was no general election in 1925, the Socialist voting strength can be only roughly estimated. The vote for Eugene V. Debs in 1920 was about 920,000. There is one Socialist in the present House of Representatives—Victor L. Berger of Milwaukee. The party headquarters is at 2653 Washington Boulevard, Chicago, and its national organ is the weekly *American Appeal*, published at that address. Other important Socialist papers are the *Daily Leader* in Milwaukee and the weekly *New Leader* in New York.

Necrology.—Death has been busy among the older generation of Socialists. Among the most prominent of those who passed away in 1925 were Hjalmar Branting of Sweden, Herman Greulich of Switzerland, Pablo Iglesias of Spain, and Henri Van Kol of Holland, each of whom has devoted a half century or more of intense activity to the Socialist and Labor movement of his own country and to the International; also Job Harriman, who was Socialist candidate for vice-president in 1900 and had in his later years been absorbed in the coöperative movement; and George D. Herron, who played an active part in the American Socialist movement for several years about the beginning of this century.

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PROFESSOR AT SMITH COLLEGE

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DIVISION XXV
IMMIGRATION AND RACES

RACE CONDITIONS IN THE UNITED STATES

By Robert S. Foerster
Professor at Princeton University

General.—The end of the first quarter of the new century supplies a most convenient observation point from which to note the composition of the population of the United States. It is true that we have not for the year 1925 any exact measure of the elements of this population. Such a measure does exist, however, for the year 1920, and it is possible to indicate in what principal ways a 1925 cross section, could we have it, would differ from that of 1920.

No other great country can measure the decennial changes of its population as far back as the United States. No other great nation, through its expanding and formative years, has recorded so fully the stages of its growth. All the great nations of the world are composed of diverse elements, but in no other great people of mixed stocks is it possible to picture at equal intervals the stages of growth. The United States Census Bureau is in fact a laboratory in which the people are periodically measured and appraised.

The total count of persons in the population in 1920 was 105,710,620. Of these 94,820,915 were white. Slowly, decade after decade, the proportion of white has been rising; it was 88.9 per cent. in 1910 and became 89.7 per cent. in 1920, the highest in our history. The principal nonwhite elements were the negroes, who were 9.9 per cent. of the population; the American Indians who were 0.2 per cent.; the Chinese and Japanese who together were about three-quarters as numerous as the Indians.

Europeans in the United States.—We are for the most part a nation composed of European white races. In the ten years ending in 1920 our native population grew by 13,333,548 or 17 per cent., and our foreign born population grew by 404,806 or 3 per cent. (foreign born whites grew by 367,209). But these figures for growth fail wholly to show the extent to which our population is still of recent foreign stock. The ten years before 1920 embraced the years of the World War. Beginning in 1914, immigration fell off because of the need for men in the fighting countries and because of the prohibitions attached to emigration from those countries; many aliens departed from the United States on being called to the colors in Europe; the drift toward the resumption of emigration from Europe on a great—perhaps an unprecedented—scale, after the War, was thwarted by new restrictions imposed upon immigration by the United States. In consequence the foreign-born stock in the United States increased but little in this decade, and in 1920 this stock constituted an unusually small proportion of our total population.

Parentage.—For a better measure of the sustained importance of the foreign element in our race stock we must look to the figures for parentage. In 1910-20 the white population born in the United States increased by 12,721,749 (18.6 per cent.). Of these 8,933,382 had American-born parents, but 2,778,228 had foreign-born parents and 1,010,139 had one foreign and one American parent. In other words, at the end of a decade in which foreign immigration seemed almost negligible, the increase of that part of our population having at least one parent foreign born was actually 44 per cent. as great as the increase of that part having both parents native.

These figures dealing with our recent growth have been given prominence because they show that, even in a decade of small immigration, the foreign race factor may contribute heavily, through births, to our next generation.

Northern and Southern Europe.—Most of the foreigners in the United States in 1920 represented an immigration that had come before 1910, and largely originated in Europe. The total number of foreign born was 13,920,692 and of these 11,882,053 originated in Europe. Northwestern and Central Europe supplied more than two-thirds of all who had come from the continent of Europe, while Southern and Eastern Europe together supplied less than one-third. In other words, our foreign population of 1920 was for the most part of the same origins as that of the early days of our settlement.

The British Isles led, with Germany a fairly close second; and these two together included about a third of all our European immigrants. Italy, however, had in 1920 nearly as many representatives as Germany, while Russia and Poland followed closely after. These three were the outstanding countries of the "newer" immigration. Austria, Hungary, Czechoslovakia, Jugoslavia, Finland, Greece were heavily represented, and loomed much larger beside the Scandinavian countries than they did in earlier years; yet Sweden, Norway and Denmark were still represented in 1920 by considerably more than a million immigrants.

Furthermore, practically all these Europeans of both the "newer" and the "older" immigration are of closely related stocks. Among Nordic, Celtic and Mediterranean races, the three great races of Europe, differences can certainly be pointed out, but they are all differences of a less emphatic sort than those that mark off the three European races and their mixtures from the other primary races of the earth.

Nearly nine-tenths of our population is of European white stock. In other terms, the ancestors of nine-tenths of our population lived in Europe as late as the time of the discovery of America, and for the most part lived there much later than that epoch. Biologically we are European, and our civilization is conditioned largely by our biology and by the culture developed by the white races in Europe.

Third Generation Stock.—It is easy to exaggerate the racial importance of the immigrants from Southern and Eastern Europe in the United States. Their numbers, it is true, look substantial when placed alongside those of our immigrants from the rest of Europe. They are, however, to-day only a first-or-second-generation stock while our immigrants from the rest of Europe are not to be thought of as merely a first-generation stock, but as essentially the same in kind with the great mass of our "native white" stock. In other words, it was not Greeks, Italians and Russians but largely British, Irish, Germans and Scandinavians (or their descendants) who were the parents of our present native stock.

Distribution in U. S.—Our foreign-born population is to be found chiefly in those parts of the country where the white population as such is most numerous. Extremely few foreign born are in the South Atlantic and East South Central States; and it is chiefly immigrants from Mexico who are to be found in the larger number of foreign born living in the West South Central States. At the head of all divisions are the Middle Atlantic States, where in 1920 lived a full third of all our foreigners. Next in order come the East North Central States, the New England States, the West North Central, and the Pacific.

Each nationality of foreign born, however scattered its representatives, has settled by predilection in some state or states. The Oriental races have been on the Pacific Coast, the

Mexican immigrants in the South West. Immigrants from England, Scotland and Ireland are largely in New York, Massachusetts and Pennsylvania; immigrants from Germany, in New York, Illinois, Wisconsin, Pennsylvania and Ohio; those from Norway and Sweden in Minnesota, Wisconsin, Illinois; those from Italy in New York, New Jersey, Pennsylvania and Massachusetts; those from Poland, Russia and Lithuania in New York, Pennsylvania and Illinois; those from Canada in Massachusetts, Michigan and New York; those from Czechoslovakia in Pennsylvania, Illinois and Ohio; those from Finland in Michigan, Minnesota and Massachusetts; those from Greece in New York, Massachusetts and Illinois; those from Switzerland in California, New York and Ohio.

Immigrants from Canada living in the United States in 1920 numbered considerably more than a million. By far the greater part of them were of European origin; some were of stocks that had been established in Canada for several generations. By their coming the white factor of the population of the United States was measurably increased.

Intermarriage. — European white stocks have always intermarried in the United States, less in the first generation (the immigrating) than in subsequent generations. Statistical data are but partial and occasional but, such as they are, attest the fact beyond doubt. When the foreign accent and foreign customs disappear, when the upbringing is purely of this country, no barrier continues between different European white stocks. In this sense we are becoming more and more homogeneous as a people.

Negroes.—The tenth of our population remaining after the white stocks are removed from the picture is principally negro. When the century began, negroes numbered 8,833,994; in 1920, they numbered 10,463,131. While the great majority live in the Southern States, their increase in those states has been proportionately much less than in the North and West. Actually there has been a large migration from the South into the rest of the country, and this has been on a scale unprecedented in our history. The number of negroes who were living in the North in 1920 fell but little short of a million and a half.

Partly because of migration to the North and partly from other causes (such as a falling birth rate while the death rate has not much changed) the negroes present in the Southern States have not increased so fast as the whites in the same states. In the East South Central division of states, an increase among the whites in 1910-20 was accompanied by an actual decrease among the negroes. And, except for West Virginia, every Southern state had in these years a greater increase of whites than of negroes, if it did not actually have a decrease of negroes.

Our census authorities, following a common usage, regard persons born of crosses between whites and blacks as belonging to our negro stock. These persons (mulattoes) amounted to 15.9 per cent of the total negro stock in 1920. In counting mulattoes, so much depends on the personal judgment and care of the enumerators, that close accuracy of the final figure is not in question. Since a still higher percentage was reached by the census authorities in 1910, the figure of 1920 is probably conservative. A higher percentage of mixed stocks were found in the Northern and Western States than in the Southern.

Indians, Chinese and Japanese.—There were three other non-white stocks separately listed by the Census. American Indians were recorded as 244,437, Chinese as 61,639 and Japanese as 111,010. The Indians were slightly fewer than in 1910. The Chinese were considerably fewer—their decline had been continuous since 1890, when they numbered 107,488. The Japanese were much more numerous than at any previous Census—their increase had been continuous since 1890, when they numbered only 2,039.

Latin Americans.—More numerous than our American Indians and the Chinese and Japanese taken together, are our immigrants from Mexico, Central and South America. They numbered more than half a million. While nearly all of them were listed by the Census as white, they generally belong to the same great race stock as the American Indians, often, however, with a white infusion. A very large majority come from Mexico. Consistency would require either that we regard our half-breed and mulatto population, as enumerated in the Census, as white, or that we classify our Mexican and other South American immigrants with American Indian stock rather than with our stock of European racial origins.

In general it can be laid down that European whites and African negroes, with an admixture of other primary stocks, constitute the population of the United States as revealed in the Census of 1920.

What now are the principal changes in our population that have come since 1920? While the changes cannot be measured accurately today, their drift is fairly clear.

Movement of Population.—The population as a whole has grown. The estimate of the Bureau of the Census puts it at 113,493,720 in 1925 (a figure which merely assumes a continuance since 1920 of the rate of growth found in the ten previous years).

Many immigrants of European origin have returned to Europe, as a rule only for visits. Their going is a reminder that between 1900 and 1920 (or certainly 1915) our immigration was very large. Many found it inconvenient to go away during the War. Many, after the War's ravages, are returning to look after relatives and property. Some, enriched, are returning to Europe to live.

From Europe immigration has continued, but at a reduced rate of flow. The new quota legislation has materially limited our immigration and now favors especially those races that had come before 1890. Its effect will be to strengthen that sector of our white population which is of Northwestern and Central European origin. In the fiscal year ending June 30, 1925, the net gain of our population through immigration—excess of arrivals over departures—was 232,945.

To this immigration must, however, be added a material increase in illegal immigration, somewhat by sea but mainly across the Canadian and Mexican borders. This illegal immigration has unquestionably been large during recent years. Those who compose it derive principally from European countries.

Partly as a consequence of the restrictions placed by our laws on immigration from Asia and Europe, there has been an increasing shift of peoples within our own hemisphere, and principally on our own continent. On the one hand, negroes have continued to move from the Southern states of our country into the North. On the other hand, immigrants have come in increasing numbers from Latin America and the West Indies, but in particular from Mexico. Should this immigration continue without abatement it would undoubtedly add materially to the strength of a race element in the United States that is not closely related to our predominant stocks of European or African origin.

SELECTION AND EXAMINATION OF IMMIGRANTS

By Arthur E. Cook

Assistant to the Secretary of Labor

The day has passed in the United States when an alien can enter the country and remain for any great length of time without measuring up to certain standards which we, the people of the United States, have determined are necessary for the good of the country. It is possible, because of statutes of limitations applying to a few of the offenses specified in the immigration laws, for an alien occasionally to evade inspection and detection long enough to make deportation impossible, but to avoid such detection for a sufficient period such an alien would have to be physically, mentally, morally and economically of such condition as not to attract the attention of State or Federal officers, or of citizens who felt their own rights, privileges or opportunities abridged by his presence. Aliens who can thus successfully avoid detection are not usually of a type who would deliberately plan entry into the United States in any other manner than that provided by law.

Exclusions.—The laws, and the machinery of the federal government, are constantly being improved so as to more successfully accomplish the purposes of immigration restriction; restriction not only by numerical limitation, but with regard to the classes who may be admitted. The exclusion list constantly grows. In an analysis of the Immigration Laws published by the Department of Labor twenty-four classes of aliens generally excluded are listed. The purposes of excluding these several classes might be said to be summarized for the welfare of the country under five heads: (1) to protect the national health; (2) to reduce crime; (3) to protect political institutions; (4) to promote economic prosperity; and (5) maintain the racial characteristics of the nation.

Examinations.—The medical examination of aliens coming to our shores either for temporary stay or permanent residence is made by the United States Public Health Service. Results are reported to the Immigration Service which acts upon the information in accordance with law.

There has been a constant demand expressed in successive laws for more care in the admission of those who are to become our compatriots and neighbors. Following a definite policy the physical and mental examination has been made more and more rigid in order to insure that those who enter the United States bring sound minds in healthy bodies and as such they are being universally welcomed.

The new law which went into effect July 1, 1924, has now had a trial of more than one year. It has allowed more thorough examinations to be made, even better than under the previous quota law, because it has insured a steady flow that replaced the wild rush at the beginning of each of the first five months of the fiscal year, and infinitely better than were possible when the rush was limited only by the capacity of the steamers. These human avalanches engulfed the resources of immigration stations and beat down the physical powers of medical officers in a way that made regular and careful work exceedingly difficult. All this is changed much for the better and examinations are now made with comfort for the immigrant and a standard of details that is possible only with ample facilities and a highly trained, efficient medical staff, with sufficient time to do thorough work.

At present a great majority of those passing our immigration stations receive a medical examination that is intensive or one comparable to a periodic overhauling by a family physician or a life-insurance examination. In addition, there is an examination in order to weed out those mentally defective or having even the beginning of insanity or nervous diseases. It is a huge task when the numbers, even under the present limited immigration, are considered. For the fiscal year ended June 30, 1925, the Public Health Service reports that 545,472 aliens were examined, of whom 25,226 were certified as having mental or physical defects. Of these 1,975 were serious or "A" certificates which note mentally affected or loathsome and contagious diseases; 14,759 were Class "B" certificates, reporting conditions that may affect the ability of the individual to earn a living and so be a possible cause of his becoming a public charge; and 8,492 were Class "C," denoting minor ailments.

Seamen.—In addition to passengers coming here for temporary or permanent stay, all alien members of crews of vessels are examined mentally and physically by the Public Health Service and these during the twelve months mentioned amounted to the huge total of 854,915. Although the stay of these sailors is limited, the Public Health Service states that they were examined with the almost the same minute care, with the result that 1,247 were certified under Class "A," 574 under Class "B" and 268 under Class "C."

Significance of Certification.—The rendering of Class "B" and "C" certificates by Public Health physicians does not indicate that the persons so certified are mandatorily excluded from the United States. The work of the Public Health doctors assigned to immigration inspection is carefully performed, with the result that in a large majority of cases of immigrants past the age of 55 a certificate of senility is rendered—meaning that the age of the persons is a condition which may affect the ability of the individual to earn a living. When all the surrounding circumstances are taken into consideration, there is frequently no justification either for the officers at the port or for the Department of Labor, when such cases come before it on appeal, to exclude such aliens merely because of the medical certificates. Usually it is found that such aliens are coming to sons or daughters, American citizens, who are financially able and willing to assume the care of the old people. There are numerous other causes, such as deformity, hernia, pregnancy, less than normal function, loss of member, etc., for which medical certificates are rendered. When, however, considered in connection with the other facts in the case, it is often quite apparent that such "deformities," "loss of member," etc., would in no wise affect the ability of the alien to earn a living. For instance, if a jeweler, bookkeeper, or any other person engaged in occupations of a sedentary nature were to be certified for loss of a leg, it could hardly be considered that such defect would impair his earning capacity. In fact, one of the officers in the principal districts has stated that over 90 per cent. of the medical certificates rendered might be considered in the nature of marks of identification.

Criminals.—As in the case of alien feeble-minded and insane, many of the individual States complain of the burden of expense by reason of alien criminals confined in public institutions. If our immigration laws means what they say, that no aliens of this class shall be admitted, and the inspection machinery actually functions 100 per cent., then there would be no criminals among our foreign-born population, except as we made them after arrival. Yet we find many persons of foreign birth behind bars in America. In his book *Selective Immigration* (published October 15, 1925) Honorable James J. Davis, Secretary of Labor, in the chapter, "The cost of poor immigrant stock" discusses the problem at some length. He says, "In 445 of our federal custodial institutions, including those for the insane, feeble-minded, epileptic, blind, deaf, tuberculous and paupers, there is a population of some 210,835. The percentage of foreign-born in the total population is 14.7. Using this percentage, there should have been some 25,366 foreign-born inmates in these institutions. Actually, there were found 35,612." Or compared with the population as a whole "the native-born contributed 93, and the foreign-born 140." Theoretically, if all defectives were excluded by the department's tests, the foreign-born contribution should have been zero and the entire population of custodial institutions native born! Dr. H. H. Laughlin in testimony before the Committee on Immigration and Naturalization suggests a remedy: "If the Federal Government had to maintain all of these inadequates at its own expense, there would be more poetic justice in the whole situation. As the matter now stands, the Federal Government has the authority in relation to immigration, whereas the several State governments have the responsibility and expense of caring for dependent immigrants and their children, who have slipped into the United States through the federal sieve."

The information just recited is not a reflection on those at present charged with the administration of our immigration laws. In often repeating the necessity of more careful selection and examination, Secretary Davis brings to light some important results of laxity in the past. When immigrants were coming in at the rate of a million or more each year sufficiently close examination was not given. With restricted immigration more detailed inspection is possible. During the fiscal year 1925 the immigration service refused admission to 159 aliens because of insanity, epilepsy, mental defects, etc.; 345 for physical defects; 562 afflicted with loathsome or dangerous contagious disease; 3029 as likely to become public charges; 523 (over 16 years of age) because illiterate; 98 as belonging to immoral classes; 251 criminals; 188 under Chinese exclusion law; 452 contract laborers.

Enforcement Problems. — Greater difficulty is experienced in enforcing the immigration laws on the land borders than at seaports. By proclamation of the President (January 12, 1925) the following aliens are permitted to cross the borders into the United States without passports or documents of any kind: "Citizens of St. Pierre and Miquelon and French citizens domiciled therein; citizens of Canada, Newfoundland, Bermuda, the Bahamas, and British possessions in the Greater Antilles, and British subjects domiciled therein; citizens of Mexico, Cuba, Haiti, San Domingo. Such persons may enter the United States temporarily from any of the countries named in this paragraph, or pass in transit through the United States from any such country—to any other such country." The above refers, it will be noted, to so-called "non-immigrants." The quota law excepts from numerical limitation also, immigrants, natives of Canada, Newfoundland, Mexico, Cuba, Haiti, Dominican Republic, and the independent countries of Central and South America. The latter class of immigrants, however, are required to possess immigration visas. The purpose of the arrangement is commendable, but without some method of alien registration, it adds to the difficulty of selection and examination. So much so that Congress appropriated $1,000,000 especially for a land border patrol. During the fiscal year 14,669 aliens were turned back by the patrol; 13,550 were referred to local immigrant inspectors for further examination; 104,073 freight and passenger trains bearing 1,553,000 passengers were examined; 416,976 automobiles and motor busses carrying 1,535,650 passengers, were stopped and examined.

Alien seamen are subject to the same physical examination upon arrival as are visitors to the United States. During the year immigration officers at ports boarded 32,194 vessels on which were examined 1,004,226 alien seamen. Of this number 1,720 were certified by the Public Health Service for loathsome or dangerous contagious diseases, and 1,595 were removed to hospitals for treatment.

Selection. — Very few of the immigrants today are "selected," because the policy of the Government as expressed in legislation is to discourage prearranged immigration. During the last year of and the three years following the Civil War, the Government did encourage immigration, and sanction arrangements for prearranged employment. But the Alien Contract Labor Law makes it a crime for any person or corporation in the United States to induce immigration by offers of employment. There is one exception to this general rule by which skilled labor may be induced to immigrate when labor of like kind cannot be found unemployed in the United States. To import such labor the prospective employer in the United States first obtains a permit from the Secretary of Labor. This permit is granted upon official verification of the inability of the person or firm desiring to import the labor to secure it in the United States. Most of the selection accomplished, therefore, is among already intending immigrants, by way of examination, for immigrants must obtain passports from their respective Governments before visas will be given.

The nearest to selection the present laws afford, aside from the exception in the Contract Labor Law regarding skilled labor, is found in the privilege of an American citizen to secure a non-quota status for his wife and unmarried children under 18 years of age and the similar right of a citizen to petition for preference status within fifty per cent. of quota limits for father, mother, husband and unmarried children under 21 years of age.

Admissions.—The total number of

aliens admitted during the fiscal year was 458,435, of which 60,203 were classified as "non-immigrant," persons not coming for permanent residence. The number of immigrants charged to the quota were 145,971; non-quota immigrants 250,912, of which 175,865 were natives of Canada, Newfoundland, Mexico, Cuba, Haiti, Dominican Republic, Canal Zone or independent countries of Central and South America; 1,475 were ministers of religion and their families; 261 professors of colleges, academies, seminaries, universities, and their families; 1,462 were students over 15 years of age coming to schools approved by the Secretary of Labor.

As already stated 3,029 aliens were refused admission on the grounds that they were likely to become public charges, but money aggregating $22,357,977.00 was shown to inspectors by aliens admitted. Thirty-five per cent. of the immigrants had less than $50 each; only 153,020 claimed to have paid their own passage; 135,769 admitted passage paid by relatives and 5525 that their way was paid by others than relatives; 224,324 came to join relatives; 28,256 to join friends. Those coming neither to friends nor relatives numbered 41,724.

The permanent alien population of the United States was increased by 232,945 — 225,490 having departed during the same period. Of this net immigration 71,561 came from the Eastern hemisphere (principally Europe) and 129,935 from the Western (mainly Canada and Mexico). "The total real immigration" according to the 1925 report of the Secretary of Labor "was 294,314, against 706,896 for the previous year, or a decrease of 58.4 per cent. Old World total immigration decreased 77.7 per cent. and New World declined 37.9 per cent. Because of the heavy return to Europe during the fiscal year the net gain from the New World nearly doubled that of the Old."

Expense.—An incident of the selection and examination of immigrants is the financial cost to the government. The expenditures of the immigration service totaled $5,231,689, while revenue from the same source amounted to $4,189,247.50. This revenue does not include the application and visa fees paid to American Consuls, amounting to $10 each for every visa granted. Principal items in the revenue schedule were head tax, $3,098,411.15; fines, $613,046.56; permits to reënter, $199,157.38; bonds forfeited, $109,350.00; care in immigration stations and treatment of aliens in hospital, $161,811.25.

THE QUOTA SYSTEM

By Arthur E. Cook

Assistant to the Secretary of Labor

Purpose.—In developing the so-called "quota" system of limiting immigration, the United States undertook to solve a problem which has never before in the history of the world been solved. Four years in the period of the world's history is a very short time to judge what effect the system will eventually have upon the life of the nation, but for the present it is accomplishing exactly what its proponents desired.

The problem is to maintain the racial characteristics of the population [see Race Conditions in the United States], and at the same time not suspend immigration entirely, it being generally considered that so drastic a measure would result in untold hardship, and also prevent the admission of certain man-power still needed from outside sources for our industries. The influx of an overwhelming number of aliens of different racial characteristics is represented by history to have been responsible for the downfall of the Roman and other empires; yet no movement of people any place, nor at any time can compare in number or rapidity with the migrations from Europe to the United States.

Place of Birth.—The theory of the quota plan is that by limiting immigration from all countries in direct proportion to the numbers of the nationals of each already here a cross section of the sum total of immigrants admitted during a year will exactly represent the racial characteristics of the present population. For the purpose of allotting the quotas, therefore, the place of birth was selected to determine the quota to which a particular immigrant would be charged, rather than the nation to which he might owe allegiance. In most cases the result is the same, but in some instances, by reason of changing political boundaries, and the very migratory nature of man, there is a difference. Therefore, a subject of Greece may be charged to the quota for Turkey, because born in the area over which Turkey had jurisdiction. However, while this may seem illogical in special instances, it is the only basis upon which the determination could be made because nationality is far less indicative of race than the geography of birth.

Basis.—The year 1925 was the first quota year under the Act of 1924 which limited admissions (of defined quota immigrants) to two per cent. of the persons accredited to their country in the census of 1890. The prior laws of this character (the first passed in 1921) used the basis of 1910, but for reasons which are stated below Congress deemed it advisable, pending a more scientific determination, to base admissions upon nationality of residents of the United States a generation ago. The quota act of 1921, as amended by resolution of 1922, permitted the entrance in the fiscal year 1924 of 706,896 immigrants. The quota law limited so-called quota immigrants to 356,995, the excess over quota limit being accounted for by the admission of "non-quota" immigrants, and immigrants from non-quota countries. By reducing the percentage to two, and the census basis to 1890, the quota limit was brought down to 164,667.

The further reason for going back to 1890 was assigned on the theory that relatively heavy incomings from southern and eastern Europe during the past twenty or thirty years radically changed the racial characteristics of our foreign-born population as compared with native white stock. Therefore any basis subsequent to 1890 was represented to be discriminatory against the races which originally founded the nation and developed it to that time; some consideration ought to be given to the national origin of all the American people as well as to the origin only of persons of foreign birth.

The 1890 census was therefore selected to be used pending a mathematical calculation of the "national origin" of all the residents of the United States in 1920. Beginning with the fiscal year 1927, a national origin basis will be established on a norm of 150,000 total admissions; each country to have an allotment reckoned on the proportion to 150,000 which the number of persons of that national origin bears to the total population of the United States.

Admissions Outside the Quota.—As already intimated, the limit fixed by quotas is not a limit placed upon all admissions to the United States, nor, in fact, upon all immigrants. During the fiscal year 1925 458,435 aliens were admitted, of which number 294,314 were of the immigrant class; 145,971 were admitted under the quota. The quota itself, 164,667, was not filled by 18,696; 148,243 were admitted as immigrants not restricted by the numerical limitation; 18,607 aliens who applied for admission without having the proper visa were debarred, and 2,723, deported. Practically all these cases represent rejections because of quota limitation. Of course, realizing the futility of trying to enter probably hundreds of thousands of "would-be" immigrants never left their homes.

The exceptions to the quota provision, responsible for the admission of so many more aliens than accounted for in the quota, are those not required to have immigration visas and those classified as "non quota" immigrants. The former group comprises: (1) government officials, their family, attendants, servants, and employees; (2) aliens visiting the United States temporarily as tourists or for business or pleasure; (3) aliens in continuous transit through the United

States; (4) aliens lawfully admitted to the United States who later go in transit from one part of the United States to another through foreign contiguous territory; (5) bona fide alien seamen serving as such on a vessel arriving at a port of the United States and seeking to enter temporarily the United States, solely in the pursuit of their calling as seamen; (6) aliens entitled to enter the United States solely to carry on trade under and in pursuance of the provisions of a present existing treaty of commerce and navigation.

"Non-quota" Immigrants. — Such are:—(1) An immigrant who is the unmarried child under 18 years of age, or the wife, of a citizen of the United States who resides therein at the time of the filing of a petition under section 9. (2) An immigrant previously lawfully admitted to the United States, who is returning from a temporary visit abroad. (3) An immigrant who was born in the Dominion of Canada, Newfoundland, the Republic of Mexico, the Republic of Cuba, the Republic of Haiti, the Dominican Republic, the Canal Zone, or an independent country of Central or South America, and his wife, and his unmarried children under 18 years of age, if accompanying or following to join him. (4) An immigrant who continuously for at least two years immediately preceding the time of his application for admission to the United States has been a minister of any religious denomination, or professor of a college, academy, seminary, or university, and who seeks to enter the United States solely for the purpose of carrying on that vocation, together with his wife, and his unmarried children under 18 years of age, if accompanying or following to join him. (5) An immigrant who is a bona fide student at least 15 years of age and who seeks to enter the United States solely for the purpose of study at an accredited school, college, academy, seminary, or university, particularly designated by him and approved by the Secretary of Labor, which shall have agreed to report to the Secretary of Labor the termination of attendance of each immigrant student; and if any such institution of learning fails to make such reports promptly the approval shall be withdrawn.

Proposed Extensions.—In his Annual Report for 1925 the Secretary of Labor recommends that the quota provisions be extended also to persons born in the countries of this hemisphere now specially excepted. This because, he points out, "by failing to impose a quota upon these countries, we are in the position of barring the front door to America while we leave the back door wide open." Also, he says, "In practice we have found that these exceptions make for evasion and violation of the law, and assist the operations of alien smugglers, bootleggers of humanity."

Relation to General Laws.—While the terms of the quota act are so broad as to make available quotas for aliens born in and of the races inhabiting the "barred zone," its provisions are in addition to and not in substitution for those of the general immigration laws. Therefore aliens inadmissible for any reason under other laws cannot be admitted even though having appropriate quota allotment. Hence, while Japan has the nominal minimum quota of 100, immigrants under that quota must be of races eligible to citizenship, e.g., the son of German parents born while visiting Japan would, if an immigrant to the United States, have to be charged to the quota for Japan. An Oriental coolie could not be admitted as a quota immigrant even though no other demand were made upon the quota available to his country.

Preferences.—Within the quotas allotted, preferences up to fifty per cent. are given in favor of a quota immigrant who is the unmarried child under 21 years of age, or the father, mother, husband, or wife of a citizen of the United States who is 21 years of age or over, and also to a quota immigrant who is skilled in agriculture, and his wife and dependent children under the age of 16 years if accompanying or following to join him. Agricultural preferences, however, do not apply to immigrants of any nationality the annual quota for which is less than 300. No one of the preferences provided has any right of priority over another.

SELECTION AND EXAMINATION OF IMMIGRANTS ABROAD

By Arthur E. Cook

Assistant to the Secretary of Labor

Precedents.—The suggestion that aliens intending to emigrate to the United States be required to submit to thorough examination before receiving permission to embark is not a matter of recent years. Published hearings of the Committee on Immigration and Naturalization of the House of Representatives show that the subject has been several times considered in connection with reforms in immigration policy. Several of the countries of South America now require of immigrants documents approved by their consular officers including: (1) medical certificate of a designated physician; (2) certified police record; (3) certificate of "ability to work"; and (4) evidence that alien has not been a public charge.

Humanitarian Argument.—The Secretary of Labor, who has during the whole of his term of office stressed the need for transferring the inspection machinery of the Public Health and Immigration Services to foreign ports endeavored to have his views expressed in legislation during the sixty-eighth Congress. On the grounds of humanity alone, he has pointed out: "One great result of moving our inspection machinery abroad to make selections among the applicants for admission would be to end the heart-rending scenes which are every day being enacted at Ellis Island and the other ports of entry. So long as under the law we admit foreigners to this country we could end all of these horrors if selection were made on the other side and immigrant stations would be transformed into gateways of welcome, devoid of the harshness of official delays and sorrows of disappointment. So long as the United States is to admit foreigners we should have a system that would function to bring us the best that we can get from abroad, but to limit the number of undesirables who seek entry and prevent 'dumping' of such classes by foreign governments."

Economic Argument.—Another argument in favor of selection abroad is based entirely upon economic grounds, that "we cannot afford to burden the American economic structure with man power we do not need, which might easily be used in time of industrial depression to undermine the American wage scale and the American standard of living." By keeping some kind of check upon the occupations of applicants for visas, their destination in the United States, and the relative employment situation, an overabundance of labor destined to a particular locality and occupation could be discouraged with resulting advantage not only to American workmen, who shall have our first consideration, but to prospective immigrants as well.

Anarchists.—Upon the authority given to American Consuls by the Immigration Act of 1924 to refuse visas, a number of anarchists, members of communist parties, etc., were prevented from coming to the United States. The law prohibiting the admission of aliens who believe in the overthrow by force and violence of organized government is constantly being enforced through the refusal of permission to come to the United States to persons of little or no influence; but when a person of some prominence, either by position or by reputation, is affected, then a storm of protest breaks. An outstanding example of this type of oversea "selection" is the case of Shapurji Saklatvala, Parsee member of Parliament of Great Britain, who expected to come to the United States as a delegate to the Interparliamentary Union. A visa was granted by the American Consulate General at London as a matter of course, but when utterances of this member of parliament indicating that he was a member of one of the excluded classes were brought to the attention of the Secretary of State the visa was cancelled, and Shapurji Saklatvala was unable to proceed. It would be difficult to enforce a law of any kind in the United States on any other basis than equally against all who come within its provisions.

Families.—This episode is a strong argument in favor of Secretary Davis' contention that certain of the provisions of the immigration laws can only be enforced through selection and examination abroad. American officers permanently stationed in the district from which an intending immigrant starts must necessarily have facilities for determining history, reputation, and condition, not only of individuals, but of the families of individuals, not available at a port of entry. "Frequently," says the Secretary of Labor, "alien families deliberately come one or two at a time and establish themselves here in order to establish a basis for a plea of mercy and consideration for the final member who, when he or she arrives, is found to be mandatorily excluded because of mental or physical condition. Often the head of the family has become an American citizen before he has permitted an insane or feeble minded child to apply for admission." With full examination abroad this situation would be impossible.

Beginnings.—The plea of the Secretary of Labor that "these examinations should be made by American officers on the authority given to American Consuls to refuse visas to those who do not measure up has not yet received legislative response. The reason is attributed to the belief on the part of Congress that foreign nations would resent legislation making such examinations compulsory. Failing in the securing of legislation requiring all applicants for visas to be examined abroad the Secretary of Labor proposed to the Secretary of State and the Secretary of the Treasury (for the Public Health Service) that endeavor be made to secure through diplomatic channels the consent of one or two foreign governments to try the plan experimentally for at least three months. The Government of Great Britain and the Irish Free State readily agreed and on July 8, 1925, seven immigrant inspectors and as many public health physicians left the United States to supervise the immigration business at the consular offices located in London, Southampton, Liverpool, Glasgow, Belfast, Dublin and Queenstown.

Actual inspection began on August 1, 1925. The total number of quota visas which may be granted in one month to natives of Great Britain and northern Ireland is 3,400, and of the Irish Free State 2,856. While the number who may come to this country is increased by the non-quota classes, quota departures from the British Isles are slightly less than the quota limit because of allotment of a small portion of the quota to consulates at places other than in the Islands, so that the actual figures may vary slightly. It is significant of the practicability of the plan, however, that during the trial period no immigrant passed by Immigrant and Public Health Service has been found inadmissible when finally passed upon by officers on this side who verified their status upon arrival here.

There is no indication at present of the official action which will be taken upon the result of this administrative experiment either toward the countries where it has been conducted, or elsewhere. It is intimated that the results are as gratifying to representatives of the foreign governments concerned as to officials of the United States and the Secretary of Labor will continue his effort to have the plan written into permanent law. Of necessity a larger foreign service of the United States would be required, but the cost of administration of the immigrant laws at home would be decreased. Only experienced inspectors, it is officially stated, would be considered for this foreign service should the overseas examination system be extended or become permanent.

PROBLEMS OF IMMIGRATION

By Theodore G. Risley
Solicitor, Department of Labor

Deportation of Aliens.—The statistics for the past two years show a marked increase in the number of aliens deported. For example, in 1892, 637 aliens were deported for being unlawfully in the United States. In 1900, the number was 356; in 1905, 845; in 1910, 2,695; in 1915, 2,564; in 1920, 2,762; while in 1924, the figures had mounted to 6,409 and for the year ended June 30, 1925, there were 9,495 aliens deported. Of this latter number 1,914 were deported to Canada and 1,828 to Mexico, the remainder, with the exception of a small number of South Americans, Asiatics and Africans, being deported to European countries. The aliens deported should be distinguished from those rejected for various causes at United States ports of entry for the year 1925. Of the latter class there were 25,390 rejected during the year 1925, as against 30,284 rejected during the year 1924, and 20,619 in 1923.

Prevention of Entrance.—Large numbers of aliens were prevented from entering the United States unlawfully during the year 1925 or detained temporarily and in some cases arrested on warrant through the efforts of the newly created Border Patrol Service of the Department of Labor. This patrol service was created by Congress on May 8, 1924 (43 Stat. 240), and the power of patrol officers to make arrests was defined by the subsequent act of February 27, 1925 (43 Stat. 1049). This service was made necessary by the marked increase in recent years of aliens surreptitiously entering the United States, particularly along the Canadian and Mexican borders, due to the limitation on the number of aliens permitted to enter the United States by the Quota Act of May 19, 1921, as amended May 11, 1922, as well as by the further reduction of the number of admissible aliens by the Immigration Act of 1924. The extensive land border of the United States on the Mexican and Canadian sides, as well as our proximity to the islands of the West Indies and Cuba, make the work of preventing the illegal entry of aliens into this country one of enormous difficulty. The figures submitted by the Border Patrol Service indicate that this manner of unlawful entry into the United States is being brought under control and has the hearty coöperation of Canadian and Mexican officials.

Proposed Deportation Bill.—As a further means of preventing the illegal entry of aliens into this country a drastic deportation act was introduced and considered by the 68th Congress. This bill passed the House but failed to pass the Senate. One of the important features of this deportation bill was the removal of the limitation of time in which an alien might be deported from the United States for causes divided into fourteen classes. In this bill an effort was also made to control the entry of seamen into the United States, large numbers of whom enter and remain in the United States in violation of law. The deportation bill provided for the manner of deportation of such seamen as had remained in this country unlawfully, though the bill carefully protected the rights of legitimate seamen engaged in commerce.

Registry.—As a concomitant measure of protection to the United States from the entry of undesirable aliens it has been proposed that all aliens in this country be enrolled or registered. By this procedure it is thought that the naturalization of desirable aliens as citizens of the United States will be encouraged and the presence here of groups of undesirables more easily noted and controlled. It is possible that this subject may receive serious consideration by the present Congress in view of the fact that by a recent court decision of the Circuit Court of Appeals of the Eighth Circuit the penal provisions of the passport act of May 22, 1918, have been declared to be unenforcible (in re Stefan Flora).

Chinese Immigration.—Chinese of the laboring class are not entitled to enter the United States under the terms of the Chinese Treaty of 1880 and later acts of Congress. The records of the Immigration Service indicate that 1,721 alien Chinese were admitted to the United States during the fiscal year 1925, and 688 were denied admission, as against 4,670 admitted and 1,051 excluded in 1924. This decrease, in a measure, is due to the Immigration Act of 1924 which tends to reduce the number of Chinese entitled to enter this country. It should be understood that the bulk of alien Chinese entering this country are of the merchant and student classes. In the recent case of Chang Chan et al. v. Nagle, 268 U. S. 346, decided May 25, 1925, the Supreme Court of the United States decided that native Chinese women, being themselves ineligible to citizenship, do not become citizens of the United States by reason of marriage to American citizens and are not entitled to admission to the United States under the 1924 immigration act. Under our laws, however, the children of such union are American citizens. On the other hand, by the decision of the same court, on the same day, in the case of Cheung Sum Shee et al. v. Nagle, 268 U. S. 336, it was held that alien Chinese wives and minor children of Chinese merchants lawfully domiciled in the United States are not excluded by the 1924 immigration act, being guaranteed the right of entry into this country by the treaty with China of 1880.

The incentive for alien Chinese to gain admission to the United States is very great and the Immigration Service is constantly confronted with attempts to fraudulently circumvent the law. On the whole the entrance of Chinese into this country is well under control. The immigration records show that 19,710 seamen of all nationalities deserted their vessels in United States ports during the year 1925 and about 77,917 for the past three years. However, only a small percentage of deserting seamen were Chinese, in 1925 the number being 387. For the past five years the number of alien Chinese departing from the United States exceeded in number those entering, in 1925 there being 3,263 emigrant alien Chinese as against 1,721 immigrants.

Japanese Immigration.—Ever since 1903 the immigration of Japanese into the United States had been controlled by the plan called the "Gentlemen's Agreement" which provided in effect that Japanese of the laboring class would not receive the necessary passports for coming to the United States. This allowed, as in the case of Chinese immigration, Japanese lawfully to enter the United States for a considerable period as merchants, students and government officials. In 1925, 682 immigrant Japanese were admitted to this country and 1,170 emigrated, as against 8,481 admitted and 2,120 emigrated in 1924. The territory of Hawaii has a considerable alien Japanese population, but the entry of such aliens into the mainland of the United States is prevented by the Immigration Act of 1917 and Presidential proclamations thereunder.

Japanese immigration has been seriously affected as a result of recent decisions by the Supreme Court of the United States to the effect that under our laws Japanese are of a race ineligible to citizenship (Takoa Ozawa v. United States, 260 U. S. 178, and Hidemitsu Toyota v. United States, 268 U. S. 402), also by the announced intention of Congress in passing the 1924 Immigration Act to officially end the operation of the so-called "Gentlemen's Agreement" with Japan. The treaty of April 5, 1911, with Japan provides for the entrance of Japanese into the United States to carry on trade, and in the recent case of Asakura v. City of Seattle, 265 U. S. 332, the Supreme Court of the United States decided that a law of the State of Washington which licensed and recognized pawnbroking as a business regulates "trade" within the meaning of the Japanese treaty; and that a city ordinance in that state which undertook to confine the business to citizens of the United States was void as applied to a Japanese subject who was lawfully domiciled in the United States. Of the 19,710 seamen who deserted their vessels at ports of the United States in 1925 but 64 were Japanese.

Mexican Immigration.—Because of the fact that there is no quota limitation applying against aliens born in British North America and Mexico, as well as Cuba, Haiti, the Dominican Republic, and independent Central and South American countries, the immigration to the United States from the two border countries of Canada and Mexico has been extremely high, in comparison with that from European countries, for example. In 1914 immigrant aliens from British North America numbered 86,139, as against 14,614 from Mexico. In 1923 the number admitted from British North America was 117,011 and 63,768 from Mexico. In 1924, 200,690 were admitted from British North America and 89,336 from Mexico, while for the year 1925 there were admitted 102,753 from British North America and 32,964 from Mexico. It is possible that the decrease in 1925 from the number admitted in 1924 may be due to the fact that, besides the head tax of $8 required by the 1917 Act, the 1924 Immigration Act exacts a consular tax of $10 for an immigration visa. In any event it is believed that this factor has tended to increase attempts to smuggle aliens into the United States across the border. The more settled political conditions in Mexico in recent years have been a factor in reducing emigration from Mexico, as well as the fact that the Mexican Government now discourages the emigration of its citizens. Senate Bill 2365 was introduced in the 68th Congress to extend the quota limitation to the immigration from independent countries of the Western Hemisphere and to regulate the admission of seasonal and special labor from contiguous territory. This bill failed to pass Congress.

Alien Registration.—Following the adoption of our restrictive immigration policy there has been a great increase in the number of surreptitious entries of aliens across our borders and by sea. The practice of smuggling aliens in particular has increased, and there are well-organized groups or bands along our land borders who have been engaged in this practice, for which they have often received very large sums of money as rewards for conducting their illegal operations. For the purpose of reducing such illegal entries to the lowest practical minimum and, subsequently, to frustrate the fraudulent efforts to become citizens on the part of those who have entered the country in violation of our immigration laws, Secretary Davis has formulated, and is urging the enactment of, legislation that will provide for a system of annual registration and enrollment of all aliens.

The purpose of such registration would be to promptly ascertain the presence of aliens arriving in the country unlawfully and to expedite their deportation, and also for the protection of aliens who may be in the country lawfully. President Coolidge in his first annual message to Congress recommended the adoption of the registration system. The plan is not conceived in a spirit of resentfulness or prejudice against aliens, nor has it any of those features of espionage which characterize the administrative system of continental Europe which are so dreaded by the people who have come to us from the countries where such a system prevails. France requires foreigners to register who remain in the country more than fifteen days. European people generally have been accustomed to registering every time they change their abode. The registration system proposed is free from the annoying features of the continental system and would devolve upon the alien no greater inconvenience than does the law which requires citizens to register every year or two in order to qualify themselves as legal voters. It would also greatly simplify and facilitate the legal procedure of their naturalization.

Aid to Registration Advantageous to Aliens.—The persistent, subtle efforts, both by sea and land, of vast numbers of aliens who are constantly seeking to enter the United States by evading the immigration laws must be met with unremitting vigilance and unyielding firmness in order to thwart their unlawful attempts and to maintain the integrity and the effectiveness of our immigration policy. Among the essential features of this proposed plan is the protection afforded by the certificate of registration to those aliens who comply with our immigration laws, which in their enforcement can only be obnoxious to those who seek to subvert them. It is in no sense prejudicial to any race or inimical to the rights or liberties of any class of people. If effectively administered, it would be very efficient in enabling us to discover the presence of aliens unlawfully in the country, particularly those of a vicious and menacing type who enter for the purpose of disseminating communistic and anarchistic doctrines, but would also deter others from attempting illegal entry because of the reasonable certainty of prompt discovery and deportation upon arrival.

The adoption of the proposed system of registration and enrollment would be no reflection upon the aliens, and compliance with its provisions would involve no humiliation, and at the same time it would greatly safeguard from persistent and insidious assaults one of the most vital and protective pieces of legislation enacted by our country in the last half century.

RELATION OF IMMIGRATION TO CITIZENSHIP

By Raymond F. Crist
Commissioner of Naturalization, Department of Labor

The Constitution of the United States empowered the Congress "to establish a uniform rule of naturalization." The Act of June 29, 1906 (34 Stat. L. Part I, page 596), constitutes the most important expression of the Congress under this authority. The Bureau of Naturalization of the United States Department of Labor is the executive unit charged with the administration of this law, to insure the uniformity of rule throughout the United States required by the Constitution.

Dwelling in the U. S.—By this law an alien may declare his intention to become a citizen of the United States in the court in whose jurisdiction such alien resides. The Supreme Court of the United States, on March 2, 1925, held that until an alien is legally landed he "could not have dwelt within the United States" and "never has been dwelling in the United States within the meaning of the Act." This was the case of a minor child claiming naturalization through her father, although she had not been formally admitted to reside within the United States in conformity with the immigration laws. The Supreme Court further said "still more clearly she never has begun to reside permanently in the United States within the later Act of March 2, 1907." The Supreme Court cited the case of The United States ex rel. Patton v. Tod (259 Fed. 385). In that opinion, the United States Circuit Court of Appeals said, "When the Act of 1802 became law, there was no immigration statute. Since then legislation in respect of immigration has become necessary, and we must look to the immigration statutes to ascertain when an alien can be regarded as beginning his residence in this country."

Petition for Naturalization.—The Naturalization Act of 1906 as amended constitutes the present-day naturalization law, with other statutes which relate to the acquisition of citizenship of children born abroad and living either abroad or in the United States at the time of the naturalization of their parents. An alien is not allowed to declare his intention excepting in the Court in whose jurisdiction he resides. The first step is the petition to the Court, which cannot be filed until five years of residence have been completed and the declaration of intention is at least two years old and after a year of residence in the state. If an alien waits until his declaration is seven years old it becomes invalid. Two citizens of the United States must prove all of the residence within the state in which he resides at the time of petitioning that is necessary to make five years, but any portion of that time that has been in some other state may be proven by other citizens.

Eligibles.—The petition must be signed by the alien in his own handwriting, but he cannot be admitted to citizenship unless he can speak the English language, and not then if he is a believer in the practice of polygamy or anarchistic doctrines, or is one who practices either. At the time the petition is filed he must surrender his declaration of intention to the Clerk of the Court along with a certificate showing the time, place and manner of his arrival in the United States. This certificate is furnished by the Department of Labor and is required in all cases of arrival after June 29, 1906, unless the alien is in the military or naval service of the United States, or the American merchant marine after an honorable discharge from a prior service.

Forms.—The petition is not allowed to be heard until notice of its filing has been publicly posted for at least ninety days. The law requires regular days to be fixed by rule of Court for hearing petitions for naturalization.

No declaration of intention may be made and no petition for naturalization may be heard within thirty days preceding any election.

Races.—Only aliens who are white persons or of African nativity or descent are entitled to naturalization. This excludes, under decisions of the Supreme Court of the United States, Japanese and Hindus, while the Chinese are excluded by statute enacted during the existence of the treaty with China relating to the admission of Chinese into the United States.

Fees and Penalties.—A fee of $1 is prescribed for a declaration of intention, and $4 for the filing of the petition, which includes the right to the certificate of naturalization if it is granted. One-half of these fees are required to be accounted for and paid over to the Bureau of Naturalization by the Clerks of Courts to whom they are paid. They are then deposited in the Treasury of the United States.

Penalties are provided for violating the naturalization law or for holding oneself to be a citizen before one is naturalized.

Privileges.—The citizenship conferred is limited to the continuance of permanent residence in the United States, and all privileges are extended to a naturalized citizen that are the right of a native citizen excepting the privilege of holding the office of President or Vice-President, or unlimited residence outside of the United States. While a native-born citizen may reside outside of the United States for any length of time he may desire without loss of citizenship, continued residence on the part of a naturalized citizen sets up the presumption that he has ceased to be a citizen of the United States, which presumption he must overcome before being recognized as a citizen.

Unnaturalized Aliens.—The naturalization problem of this country and its relationship to the alien population can only be reviewed with clarity upon the presentation of the mass problem. The most available statistical record is found in the census report of 1920. That report presents the entire alien born population as 13,920,692. This includes men, women and children of foreign birth in this country at that time.

There were 5,398,605 unnaturalized foreigners, and 1,223,490 foreigners who had taken out their first papers only, the declaration of intention to become citizens of the United States. These two groups comprise a total of 6,622,095. In addition to these there were 805,509 of foreign birth as to whom it was impossible to ascertain whether or not they had changed their allegiance. With these added to the number known not to have changed their allegiance, the total foreign born not identified as citizens, is brought up to 7,427,604. In the entire mass of alien born there were

6,493,088, or less than one-half, who had acquired American citizenship by naturalization.

Since 1920 there were accessions to the foreign group through all immigration ports of entry, while at the same time there was an outgoing number, but a clearly defined and computable net result of this ebb and flow of human tide shows an increase of 2,007,575 to the foreign population. This included the 232,945 which were added during the last year.

Transaction.—The importance of the question of naturalization of aliens in the United States outranks the naturalization of aliens in any other country of the world, if not more important and having greater possibilities for reaction upon the future of this country than the consequences that flow from the naturalization of aliens upon all other countries combined.

Since 1906, when supervision through the Federal Bureau was established, 2,040,500 certificates of naturalization have been granted. This included the 152,457 naturalized during the year 1925. This represents probably one-half of those actually naturalized for the reason that an average of more than one person has uniformly derived citizenship through the naturalization of the petitioner, as shown by various studies made of naturalization petitions.

From the alien population coming into the United States since 1920 only those who arrived in the year 1920 could by any possible provision of the law have acquired citizenship until during the last year, excepting the small and negligible number who acquired citizenship through military service or service in the American merchant marine for three years, and those who derived citizenship through the naturalization of another.

The number of aliens taking the various steps toward citizenship represented 591,933 in the year, and these, together with the persons interested in questions relating to the naturalization law and the rights and privileges accruing upon the acquisition of citizenship, entailed the receipt of 1,056,875 pieces of mail and the sending out of 1,243,801 pieces of mail. Much of this mail is centered on the administrative headquarters in Washington, whose incoming correspondence averages 590 pieces of mail daily.

Men and Women.—There were 277,218 declarations of intention received from aliens during this year. Heretofore and prior to the enactment by Congress of the Act of September 22, 1922, there were as a rule a negligible number of declarations of intention filed by women. This Act gave the right of independent naturalization to women and freed the question of allegiance and citizenship from the influence of the marital status. Under the influence of this Act the number of declarations from women of foreign birth has increased steadily each year, and amounted to 51,527 during the present year. There were 225,291 declarations of intention received from men out of the total. The number of women petitioning for citizenship was 22,526, and those filed by men 139,732, comprising a total of 162,258. Citizenship was conferred upon 18,576 women and 133,881 men, making a total of 152,457 adults who were made citizens during the past year, with 15,613 aliens refused citizenship. In the large number of petitions filed there has been always a small percentage of disclosures of attempts to secure naturalization illegally. There were 151 cases of individuals prosecuted criminally during the year and 62 convictions, 13 failures to convict and 76 cases still pending. From those convicted there were $10,860.80 fines, penalties and forfeitures to the United States.

Judicial Decisions.—The most important of the suits to terminate citizenship was the one decided by the Supreme Court of the United States in May. By this decision the Supreme Court held that only part of the soldiers, sailors and marines who had served in the military forces of the United States during the World War had been provided by Congress with the means of acquiring citizenship when the subject was considered in the law passed May 9, 1918.

Preliminary Examinations. — The stupendous character of the administrative responsibilities is shown by the fact that 1,185,896 individual examinations of aliens and their witnesses were made necessary in the administration of the naturalization law during the year. These examinations comprise 486,774 administrative examinations of petitioners and their witnesses prior to the court hearings, and 699,122 judicial examinations by the naturalization examiners in open court. This work was performed by a personnel of 300 men and women performing duty in offices located in twenty-eight centers, from which places they travel over the adjoining territory performing the duties necessary to the proper enforcement of this law.

Cost of the Service.—The administration of the naturalization law is no expense upon the citizen tax payers of this country. The total cost of the administration of the naturalization law has been $8,840,154.39. The government requires the deposit in the Treasury of the United States of the greater portion of the naturalization fees which the law prescribes shall be paid by aliens. The total naturalization and other fees deposited through the naturalization law up to and including 1925 amounted to $9,189,277.73. The total cost of the administration of the law was $8,840,154.39, leaving a surplus of $349,128.34 over all costs. The total income during the past year was $743,836.54, while the expense was $786,852.11. As the surplus now stands, the expenses are paid by revenues nearly six months in advance of the total expenditures.

Advantages to Immigrants.—The certificates of naturalization are made use of by naturalized citizens who desire to obtain preference and exemptions from the immigration visa requirements for the various members of their families remaining outside of the United States who are entitled thereto. These naturalized citizens file petitions for immigration visas, all of which are visaed and approved by the Bureau of Naturalization before the petition is granted. There were 22,617 such petitions received in the Bureau of Naturalization during the past year. Of these there were 1,500 petitioners who had so recently been naturalized that their certificates of naturalization had not been received in the bureau for filing from the Clerks of Courts.

Use of Immigration Visas.—The Bureau of Naturalization is the custodian of all immigration visas surrendered by immigrants under the 1924 Immigration Act at the various ports of entry throughout the United States. There were 276,815 immigration visas received and filed in the bureau during the past year.

These visas were examined to prove the claims of lawful entry of 25,818 aliens who applied within the first year after their arrival in the United States for the privilege of becoming citizens. Among these, refusals resulted in 1,420 cases where the admissions were not as immigrants but for visits of temporary character, and 3,629 whose entry was indicated to have been lawlessly accomplished. A disclosure of significance is seen in the cases of 5,963 aliens who gave occupations entirely different from those which were shown upon their immigration visas, when it is known that preferences are given to certain aliens because of the vocations claimed before the Consuls. This activity also discloses aliens illegally here who are scattered throughout the United States away from the large alien colonies of the industrial cities. Fraudulent naturalization will, therefore, be attempted at places where, heretofore, only law-abiding aliens have been found. There were 111,209 quota-period aliens who applied during the year to establish residence and take out the first papers.

Certificates of Arrival.—During the year there were 125,000 applications for certificates of arrival for petitioning purposes received at the Ellis Island branch of the Bureau of Naturalization. These certificates, with those issued from the Immigration Service elsewhere, comprise the total of approximately 162,000 petitions for naturalization filed during the year.

Districts.—Heretofore the Naturalization Service has been administered through eleven districts and fourteen subdistricts, comprising the whole

United States. During the year the administrative machinery was made more compact by increasing the number to twenty-three districts in four of which sub-headquarters were located. This made all but four of the branch offices immediately under the direction of the bureau in Washington.

The Citizenship Training Work of the Bureau of Naturalization.—This was specifically authorized by the Act of May 9, 1918, and has been promotive of the opening of the public schools throughout the United States for the instruction of adult immigrants. During the year there were 79,964 textbooks furnished to the students attending these classes who were candidates for citizenship.

Recommendations for amending the naturalization law.—Recommendations for amendment of the law were made during the year, based upon the nineteen years of administrative experience, and also upon the latest legislative expressions in the immigration laws. Among the more important of these recommendations is the enrollment or registration of all aliens annually, with the payment of a fee for the certificate of registration and the more effective organization therefrom of the public school system in the teaching of adult immigrants. The natural consequence would be the requirement to read, speak and write our language.

Proposed Administrative Naturalization.—It has been recommended that the naturalization of aliens cease as a primarily judicial function and be vested with the administrative branch of the Government, with the right of appeal to the appropriate United States Courts on questions of law and after questions of fact have been reviewed by the Bureau of Naturalization in Washington in any case. This would change the traditions of the country from the first enactment of Congress which made naturalization a judicial function. Since that time the naturalization of aliens has grown to such proportions as to make it necessary for the Courts to depend almost entirely upon the Naturalization Examiners representing the administrative branch of the Government at the judicial proceedings. The public naturalization is hence a purely perfunctory proceeding generally, lacking in dignity and occasioning a great deal of criticism on the part of the public. Inasmuch as the responsibility is largely administrative and a considerable portion of the judicial responsibility is by reason of circumstances further imposed upon the administrative branch, those experienced in the naturalization law, in the large centers particularly, including Federal and State Judges, are advocates of the change.

Photographs.—Photographs are recommended for attachment upon all naturalization papers at the time of their issuance for identification, prevention of their fraudulent use, and protection of the naturalized citizens.

The requirement of proof of lawful arrival.—This and the refusal of the privileges of naturalization to aliens unlawfully in the United States, with a discretionary authority vested in the Bureau for the relief of those who entered prior to the quota restrictions, are recommended.

Other Recommendations.—Among the other recommendations are a fee for certificate of arrival as evidence of lawful entry, increase above the present fees of $1 for the declaration of intention and $4 for the petition for naturalization which includes the issuance of the certificate of naturalization; the vesting of power in the Naturalization Service to make findings of which the Courts could take judicial notice at the hearing, and dispensing with the appearance of the two witnesses in Court at the hearing; permission to file a petition for naturalization in any authorized Court without awaiting the completion of one year of residence in the State, Territory or District of Columbia, all other residence to be established by depositions; the personal appearance of each applicant before a Naturalization Examiner prior to the filing of his petition for naturalization; that the children of those naturalized should appear in open Court upon arriving at adult age and before exercising the rights of citizenship as adults take the oath of allegiance and secure their own certificates.

STATISTICS OF IMMIGRATION

By Arthur E. Cook

Assistant to the Secretary of Labor

ALIENS ADMITTED TO THE UNITED STATES UNDER THE IMMIGRATION ACT OF 1924, DURING THE FISCAL YEAR 1925

By Country or Area of Birth, as Specified.

(Quota immigrant aliens are charged to the quota; nonimmigrant and nonquota immigrant aliens are not charged to the quota. Hence the total immigrants may exceed the total statutory quota.)

Country or Area of Birth	Admitted			Total Admitted Fiscal Year 1925
	Quota Immigrants	Annual Quota	Non-immigrant and Nonquota Immigrants	
All countries	145,971	164,667	301,115	457,086 *
Europe	144,226	161,422 †	110,986	255,212
Albania	61	100	363	424
Andorra	1	100	4	5
Austria	769	785	980	1,749
Belgium	507	512 †	1,480	1,987
Bulgaria	89	100	143	232
Czechoslovakia	2,550	3,073	1,896	4,446
Danzig, Free City of	211	228	31	242
Denmark	2,523	2,789 †	1,858	4,381
Esthonia	113	124	66	179
Finland	477	471	1,016	1,493
France	3,340	3,954 †	5,300	8,640
Germany	45,714	51,227	8,971	54,685
Great Britain and Northern Ireland:				
England	14,780	34,007 †	22,545	37,325
Northern Ireland	1,616		714	2,330
Scotland	12,408		6,853	19,261
Wales	906		829	1,735
Greece	101	100	2,257	2,358
Hungary	356	473	993	1,349
Iceland	64	100	22	86
Irish Free State	27,125	28,567	4,665	31,790
Italy	2,678	3,845 †	21,358	24,036
Latvia	123	142	196	319
Liechtenstein	12	100	2	14
Lithuania	329	344	739	1,068
Luxemburg	104	100	115	219
Monaco	2	100	5	7
Netherlands	1,455	1,648 †	1,995	3,450
Norway	6,115	6,453	3,076	9,191
Poland	4,857	5,982	3,987	8,844
Portugal	479	503 †	2,212	2,691
Rumania	605	603	1,259	1,864
Russia	2,043	2,248 †	2,634	4,677
San Marino	....	100	....	....
Spain	146	131 †	4,791	4,937
Sweden	8,966	9,561	3,187	12,153
Switzerland	1,898	2,081	2,030	3,928
Turkey in Europe	100	100 †	794	894
Yugoslava	490	671	1,494	1,984
Other Europe (Malta and Gibraltar)	113	†	126	239

* Does not include 1,349 aliens from quota countries, who arrived prior to the close of June 30, 1924, and were admitted after that date.

† Quota for colonies, dependencies, or protectorates in Other Europe, Turkey in Asia, Other Asia, Other Africa, Other Pacific, and in America, is included with the quota for the European country to which they belong. Where no quota indicated countries are exempt from limitation.

ALIENS ADMITTED UNDER 1924 IMMIGRATION ACT (*continued*)

Country or Area of Birth	Admitted			Total Admitted Fiscal Year 1925
	Quota Immigrants	Annual Quota	Non-immigrant and Non-quota Immigrants	
Asia	657	1,424	15,837	16,494
Afghanistan	....	100	3	3
Arabian Peninsula	3	100	6	9
Armenia	22	124	107	129
Bhutan	....	100	....	....
China	109	100	9,358	9,467
India	58	100	487	545
Iraq (Mesopotamia)	19	100	22	41
Japan	5	100	4,054	4,059
Muscat (Oman)	....	100	3	3
Nepal	....	100	1	1
Palestine	61	100	328	389
Persia	74	100	92	166
Siam	2	100	208	210
Siberia	96	(Russia)	....	31
Syria and The Lebanon	99	100	815	914
Turkey in Asia	28	†	337	365
Other Asia	81	†	81	162
Africa	284	1,200	606	890
Cameroon (British)	....	100	3	3
Egypt	81	100	137	218
Ethiopia (Abyssinia)	....	100	....	....
Liberia	1	100	7	8
Morocco	15	100	19	34
Ruanda and Urundi	....	100	2	2
South Africa, Union of	114	100	265	379
South West Africa	17	100	40	57
Togoland (French)	....	100	1	1
Other Africa	56	†	132	188
Pacific	284	621	4,237	4,521
Australia	155	121	2,956	3,111
New Zealand	99	100	1,152	1,251
New Guinea	....	100	2	2
Samoa	8	100	7	15
Yap	1	100	22	23
Other Pacific	21	†	98	119
America	520	†	179,489	179,969
Canada	....	....	102,188	102,188
Newfoundland	....	....	2,895	2,895
Mexico	....	....	50,643	50,643
Cuba	....	....	9,303	9,303
Dominican Republic	....	....	868	868
Haiti	....	....	173	173
British West Indies	386	†	3,883	4,269
Dutch West Indies	22	†	106	128
French West Indies	25	†	54	79
British Honduras	33	†	82	115
Canal Zone	....	....	56	56
Other Central America	....	....	2,811	2,811
Brazil	....	....	1,400	1,400
British Guiana	43	†	124	167
Dutch Guiana	5	†	16	21
French Guiana	1	†	2	3
Other South America	....	....	4,813	4,813
Greenland	....	....	5	5
Miquelon and St. Pierre	5		27	32

† Quota for colonies, dependencies, or protectorates in Other Europe, Turkey in Asia, Other Asia, Other Africa, Other Pacific, and in America, is included with the quota for the European country to which they belong. Where no quota indicated countries are exempt from limitation.

SEX AND AGE OF IMMIGRANT ALIENS

Sex	
Male	163,252
Female	131,062
	294,314

Age	
Under 16 years	50,722
16 to 44 years	213,980
45 years and over	29,612
	294,314

IMMIGRANT ALIENS ADMITTED AND EMIGRANT ALIENS DEPARTED, DURING THE FISCAL YEAR ENDED JUNE 30, 1925, BY OCCUPATIONS

Occupations	Immigrant Fiscal Year, 1925	Emigrant Fiscal Year, 1925
All occupations	294,314	92,728
Total professional	10,481	2,114
Actors	188	146
Architects	244	35
Clergy	913	309
Editors	33	11
Electricians	1,306	120
Engineers (professional)	1,813	345
Lawyers	116	39
Literary and scientific persons	187	69
Musicians	496	113
Officials (government)	403	154
Physicians	540	68
Sculptors and artists	105	75
Teachers	1,815	250
Other professional	2,322	380
Total skilled	51,278	8,856
Bakers	1,175	216
Barbers and hairdressers	802	195
Blacksmiths	1,037	118
Bookbinders	95	8
Brewers	23	2
Butchers	912	130
Cabinetmakers	224	48
Carpenters and joiners	5,548	1,111
Cigarette makers	24	6
Cigar makers	115	377
Cigar packers	16	10
Clerks and accountants	13,637	1,224
Dressmakers	1,437	202
Engineers (locomotive, marine, and stationary)	795	135
Furriers and fur workers	127	24
Gardeners	687	96
Hat and cap makers	59	1
Iron and steel workers	1,317	229
Jewelers	166	66
Locksmiths	1,575	5
Machinists	2,022	632
Mariners	722	459
Masons	1,361	97
Mechanics (not specified)	2,840	327
Metal workers (other than iron, steel, and tin)	327	30
Millers	177	81
Milliners	344	26
Miners	2,241	953
Painters and glaziers	1,467	199
Pattern makers	103	15
Photographers	170	19
Plasterers	408	27
Plumbers	670	72
Printers	676	33
Saddlers and harnessmakers	132	2
Seamstresses	739	51
Shoemakers	860	332
Stokers	287	59
Stonecutters	167	21
Tailors	1,394	387
Tanners and curriers	49	3
Textile workers (not specified)	288	299
Tinners	296	17
Tobacco workers	12	1
Upholsterers	90	10
Watch and clock makers	157	11
Weavers and spinners	863	187
Wheelwrights	26	9
Woodworkers (not specified)	118	12
Other skilled	2,501	282
Total miscellaneous	113,811	59,775
Agents	1,726	200
Bankers	90	83
Draymen, teamsters, and hackmen	551	75
Farmers	13,875	1,474
Farm laborers	16,022	157
Fishermen	1,139	109
Hotel keepers	101	163
Laborers	34,784	49,890
Manufacturers	265	68
Merchants and dealers	3,737	2,119
Servants	26,924	2,951
Other miscellaneous	14,597	2,486
No occupation (including women and children)	118,744	21,983

ALIENS DEBARRED FROM ENTERING, AND ALIENS DEPORTED AFTER LANDING, BY CAUSES

Causes	Debarred Fiscal Year, 1925	Deported Fiscal Year, 1925
Total	25,390	9,495
Insanity, epilepsy, mentally defective, etc.	159	608
Physically defective	345	174
Loathsome or dangerous contagious disease	562	104
Likely to become a public charge	3,029	1,759
Accompanying aliens	75	2
Under 16 years of age (unaccompanied by parent)	76	24
Unable to read (over 16 years of age)	523	474
Contract laborers	452	66
Immoral classes	98	327
Criminals	251	637
Under Chinese exclusion law	188	93
Under per centum limit act of 1921, as extended (excess quota)	561	394
Without proper visa under Immigration Act of 1924:		
At land ports	15,989	2,723
At sea ports	2,618	2,110
All others	464	....

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Assistant to the Secretary of Labor

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DIVISION XXVI
LABOR AND LABOR LEGISLATION

CONDITIONS OF LABOR

By George Soule
Editorial Department, New Republic

Tendencies. — Detailed information on various aspects of conditions of labor during the year will be found in the other sections of this Division. In general, it may be said that it was a year of comparatively little conflict, that wages and the purchasing power of wages showed small change during the year and remained, for factory workers, transportation workers, and the building trades, somewhat above the pre-war level. Standard hours of work showed little change. The volume of employment in the building trades was high, in the manufacturing industries was fair, though below the peaks of both 1920 and 1923. In transportation it showed a diminution from immediately preceding years, and in bituminous coal mining was very low until the anthracite strike diverted more demand to the soft coal fields.

Difficulties.—The chief trouble spots were in textiles and coal mining. A wage reduction movement, particularly in woolens, evidenced principally in New England, was noted during the first few months of the year. Slack output and employment in bituminous coal led to reductions of wages to the 1919 and even in many cases to the 1917 scale in the non-union districts and even in some of the union mines.

The housing shortage, which had been particularly severe for labor ever since the war, was but little alleviated by the building boom except for the highest paid groups. Toward the end of the year a formidable agitation for the use of public credit in building adequate low-cost housing was begun in New York.

Labor Enterprises.—The chief advances made by labor during the year were in new kinds of endeavors begun after the war. Thirty-one labor banks had been established, showing resources of over $100,000,000, deposits of over $86,000,000, surplus and profits of over $2,750,000, and capital of over $8,000,000. A few labor investment companies were active. Workers' education made progress, both through the activities of the Workers' Education Bureau, affiliated with the A. F. of L., and resident labor colleges such as Brookwood. The movement for union-management coöperation for better service on the basis of a fair sharing of benefits achieved was strengthened on the Baltimore and Ohio Railroad, where it began, and was extended to other systems such as the Canadian National. The adoption by the A. F. of L. of a new wage principle based on productivity is recorded under Labor Organizations. President Green of the A. F. of L. addressed the Taylor Society and the Management Division of the American Society of Mechanical Engineers offering coöperation by trade unions and was received with cordiality.

XXVI. LABOR AND LABOR LEGISLATION

LABOR ORGANIZATIONS

By George Soule
Editorial Department, New Republic

The American Federation of Labor, meeting for its forty-fifth annual convention in Atlantic City, N. J., Oct. 5, reported a paid-up membership of 2,887,297 in affiliated unions. This is an increase of 12,318 over the previous year, and the first gain since 1920, when the membership began to decline from the peak of 4,078,740. It constitutes a rise of 887,000 or 44 per cent. from the pre-war level of about 2,000,000 existing in 1913-14. Such an increase is about in line with the normal trend of growth from 1900 to 1914. Forty-nine state federations, 107 national and international unions, 850 city central bodies, and 31,261 local unions were reported. Unions reporting increased membership included the building trades, barbers, railway clerks, fire fighters, stationary firemen, fur workers, longshoremen, musicians, post office clerks, street railway employees, teamsters and printing trades.

William Green, formerly Secretary of the United Mine Workers of America, and elected President of the Federation by the Executive Council after Samuel Gompers' death in 1924, was elected to succeed himself by the Convention without opposition. James P. Noonan, President of the International Brotherhood of Electrical Workers, was elected by the Convention to succeed himself as Eighth Vice-President of the Federation, to which position he had been appointed by the Executive Council to fill the vacancy caused by the succession of Mr. Green to the Presidency. All other officers were the same as the previous year.

Proposals of the Federation.—The Convention adopted numerous resolutions in favor of an organizing campaign and assistance in organizing special trades and localities. Special attention was given to the organization of women, of the city of Detroit, of North Carolina, of clerical employees and of machinists in garages and automobile repair shops. It also adopted a resolution on wages, opposing wage reductions, urging "elimination of wastes in production in order that selling prices may be lower and wages higher," and enunciating the principle that real wages should be increased and hours of work reduced "in proportion to man's increasing power of production." Other important resolutions upheld the Child Labor Amendment to the Constitution, opposed the formation of a labor party and reaffirmed the nonpartisan political policy, supported the Workers' Education Bureau, etc.

Other Organizations Not Affiliated with the A. F. of L. have a membership of about 680,000. Of these the most important, numerically and industrially, are the four train-service railroad brotherhoods, the Engineers, Firemen, Conductors and Trainmen, with about 425,000 and the Amalgamated Clothing Workers of America with about 135,000. Warren S. Stone, President of the Brotherhood of Locomotive Engineers and a leader prominent in all activities of labor, died June 12, and in his place was elected William B. Prenter. The Conductors held their convention May 4 in Minneapolis, the Trainmen May 12 in Cleveland and the Firemen June 1 in Detroit. Action taken concerned chiefly routine matters. The Amalgamated Clothing Workers made a significant gain in December when the clothing factory of A. Nash & Co., Inc., in Cincinnati was organized without a strike. The owner of the establishment, Arthur Nash, popularly known as "Golden Rule Nash" because of his announced intention to apply Christian principles in his business, had long been pointed out as an employer who operated a factory under good labor conditions without a union shop, but he came to the conclusion that his employees should be allowed to organize and affiliate with the national union and that he should deal with them through union collective bargaining. During the year a vigorous attempt was made to form a union of Pullman porters.

INTERNATIONAL RELATIONS OF LABOR

By George Soule

Editorial Department, New Republic

Affiliations.—The American Federation of Labor decided upon efforts to increase affiliations with the Pan-American Federation of Labor and to assist the organization of trade unions in Spanish-American countries. As an aid to international comity, it recommended representation of the A. F. of L. in the activities of the Pan-American Union, the Pan-American Financial Congress and the recently created Arbitration Board.

The A. F. of L. convention was addressed by fraternal or visiting delegates from the British, Irish, German, Canadian and Mexican labor movements.

The President of the A. F. of L. was instructed by the Convention to continue negotiations with the International Federation of Trade Unions (the Amsterdam International) to find a basis for reaffiliation by the A. F. of L., which had withdrawn during the war.

Holding Off.—On December 23 President Green of the A. F. of L., on the authority of the Executive Council, addressed a letter to the members of the American Labor movement denouncing Italian Fascism, saying that it was as great a menace to liberalism, international peace and trade-unionism as was Russian Communism, and warning Italian workers in this country against the Fascist movement.

The A. F. of L. refused to have anything to do with the effort recommended by A. A. Purcell, fraternal delegate of the British Trades Union Congress, to bring about fraternal relations with the Russian trade unions or the "Red" international. It voted down a resolution in favor of recognition of the Soviet government by the United States.

Seamen.—The A. F. of L. protested against the adoption of a proposed international seamen's code prepared by the Labor Office of the League of Nations, on the ground that it would perpetuate involuntary servitude on board ship by penalizing seamen for quitting work in harbor. It vigorously disapproved proposed methods for the registering of aliens in the United States.

Mexico.—President Green in June inquired of the Secretary of State concerning the purpose and basis of his public declaration on the affairs of Mexico, and the Federation later approved Mr. Green's action and declared itself a champion of the rights of the Mexican people. It endorsed the creation of a joint commission by the A. F. of L. and the Mexican Federation of Labor for the study of immigration and emigration and the voluntary regulation of migration of workers between the two countries. It opposed extension of the quota provisions of the immigration law to Canada and Mexico.

The A. F. of L. raised the funds to furnish a room in the International Labor Office of the League of Nations.

Extraterritoriality. — Consequent upon the strike in China directed against foreign interests, President Green of the A. F. of L. wrote a letter, July 10, to President Coolidge declaring for the abolition of extraterritorial rights in China. The October convention endorsed his action and passed a resolution favoring "the withdrawal from all nations of extraterritorial privileges" and "giving to China customs autonomy." It also extended to the Chinese Federation of Labor an offer of "all possible assistance in the development of their trade union movement," and expressed concern for the establishment of high labor standards in all countries bordering the Pacific. It reaffirmed its position, however, in favor of exclusion of Asiatic labor from the United States, whether Chinese or Japanese.

World Court.—The Executive Council was directed to study the World Court proposal and report its findings. It was also directed to aid the movement for international disarmament.

XXVI. LABOR AND LABOR LEGISLATION

LABOR IN POLITICS

By George Soule

Editorial Department, New Republic

Proposed Labor Party.—The year was not one of important elections and the chief activity of labor in politics was the aftermath of the La Follette campaign of 1924 and preparations for the future. The Cleveland convention which nominated Robert M. La Follette for the Presidency resolved that a convention should be held in February, 1925, to consider the organization of a permanent party. After the November elections, a number of the railroad labor organizations which had been among the most important union supporters of the independent movement attempted to prevent the calling of this convention, but were over-ruled by the political executive officials created before the election. The convention was held Feb. 21 in Chicago.

The railroad labor delegates at once announced that their organizations would not officially take part in the deliberations, though they could not prevent officers or members of the unions from doing so as individuals. This action forced the convention to depart from any plan of continuing the party as a coalition of groups. The Socialists announced that they could not take part in the movement except as an autonomous group, and their support for the movement was therefore withdrawn when it was decided not to continue it nationally on a group basis. The final action looked toward the formation of a party on a basis of individual affiliation, but allowed certain autonomy to state units in making group affiliations with the consent of the national executive committee. Since this convention, the only visible activity in the movement has been on the part of several state organizations.

Socialists.—After the death of Robert M. La Follette a special election was held in Wisconsin to fill his place in the Senate. Robert M. La Follette, Jr., was nominated in the Republican primaries by a majority of over 160,000 over his 3 rivals, and was elected by a majority of about 113,000, the Socialist candidate, John M. Work, receiving about 11,000 votes. The only other important election of the year in which the Socialists took part was the municipal election in New York City, in which Norman Thomas, the Socialist candidate for Mayor, received 39,000 votes, as against 82,000 for the Socialist candidate in 1921 and 145,000 for Morris Hillquit in 1917.

Attitude of American Federation of Labor.—At its October convention in Atlantic City the Federation voted almost unanimously to continue its non-partisan political policy. The report of the Executive Council on this matter contained the following passages: "During the years since the non-partisan political policy has been followed by the American Federation of Labor it has seen many independent or third party movements come and go. . . . The Executive Council believes that as a result of its non-partisan political policy the launching of third party movements has been proved wasted effort and injurious to the desire to elect candidates with favorable records. The 1922 and 1924 political campaigns definitely determined this fact." The committee in charge later reported to the convention that in the last election the Federation endorsed 303 candidates for the House of Representatives, of whom 186 were elected. Of those indorsed 280 were Republicans or Democrats and 23 were independents or nominees of minor parties. A resolution favoring the formation of a Labor Party was overwhelmingly defeated. In response to a question from a delegate as to whether the position of the Federation would prevent it from indorsing labor party candidates in localities where these candidates were satisfactory to the Federation and had a good chance of election as in the case of Senators Shipstead and Johnson in Minnesota, President Green answered in the negative.

Relation to Political Methods.—The convention resolved to safeguard the direct primary and facilitate any means for enabling voters to split their tickets or to vote for independent candidates. It resolved to accept the coöperation of sympathetic individuals outside the labor movement in carrying on its campaign. It resolved to prepare actively for the Congressional elections of 1926. It resolved to oppose the attempt to establish more drastic rules for cloture of debate in the Senate. In discussion of this measure President Andrew Furuseth of the Seamen stated that when some years ago there had been determined agitation for a labor party, an investigation had been undertaken of the cloture rules of the House, which showed that because of them no minority could even procure consideration of a measure opposed by the majority without sufficient votes to command a roll call, and that labor had no hope of electing directly enough members to demand a roll call. The cloture move which occurred in the Senate was considered part of an attempt to reduce minorities to a similar impotence in that body.

The Workers Party.—The non-secret political branch of the Communist movement in the United States made no progress during the year. The activities of the Communists in the trade-unions suffered numerous set-backs, and the struggle within the Communist organization between the two factions led respectively by W. Z. Foster and C. E. Ruthenberg became more embittered and resulted in numerous complications which cannot be authoritatively discussed because of the policy of secrecy maintained by the organization. (See article on Bolshevism in this volume.)

STRIKES AND LOCKOUTS

By George Soule

Editorial Department, New Republic

IN GENERAL

Number of Strikes.—Strikes and lockouts were in general less numerous and less severe than for any year in the preceding decade, with the exception of 1922. The record of the United States Bureau of Labor Statistics for the first 6 months shows 274 strikes in the first quarter and 446 in the second quarter, as compared with 310 and 430 respectively in 1924. Employees involved, so far as reported, numbered 101,179 in the first quarter and 98,377 in the second. Only 14 strikes were reported in the first quarter involving 1,000 or more employees, and the total of employees in these strikes was 72,160. In the second quarter 23 strikes involved 1,000 or more and included in all 61,430 employees. But one employer was involved in each of 208 strikes in the first quarter, two to five employers in 13 strikes, more than five employers in 12, the figures not being reported for 41 strikes. In the second quarter the corresponding figures were: one employer—264 strikes; two to five employers—35 strikes; more than five employers, 41 strikes; not reported, 106. The average duration of strikes was 15 days in the first quarter and 22 days in the second, total days lost being 4,138 and 5,330 respectively.

Causes.—As usual, a large proportion of strikes involved wages either directly or indirectly, the number being 103 in the first quarter and 219 in the second. Other prominent causes were, unfair products, general conditions and recognition of the union. In the first quarter, 187 strikes were by union members, 30 by non-union, 11 by both, and 42 were not reported. In the second quarter, 365 were by union members, 35 by non-union, 9 by both, and 31 were not reported. In a considerable number of cases the strikers were unionized during the course of the dispute.

Results.—The employees came out of the strikes with greater advantage than the employers. Employers won 57 strikes in the first quarter and 56 in the second, as against victory for employees in 61 cases in the first and 117 in the second quarter. In addition many gains for employees were made in the strikes compromised, numbering 29 in the first quarter and 65 in the second, and in those arbitrated, numbering 17 in the first quarter and 10 in the second. Results of 73 strikes were not reported.

Distribution.—A large number of the strikes were confined to a comparatively few industries and occupations. In the first quarter, 62 were of clothing workers, 54 of textile, 40 of building, and 26 of coal miners. In the second quarter, 178 were of building workers, 58 of clothing workers, and 27 each of bakers, miners and textile workers. New York, Pennsylvania and Massachusetts led in the number of strikes in both quarters. Similar figures for the last half of the year are not available, but they would probably show no greater number or severity of strikes, but rather less, with the single exception of the anthracite coal strike. There was almost certainly a falling off of strikes in textiles and building trades.

ANTHRACITE COAL STRIKE

Occasion.—The most important strike was that of the 58,000 anthracite coal miners, beginning Sept. 1, the date of expiration of the previous agreement. The union requested a 10 per cent. wage increase for miners and $1.00 per day more for miners' laborers, the check-off of union dues and assessments, and changes in working conditions. At the beginning of joint negotiations the operators' committee requested the union to agree to arbitrate all disputes remaining unsettled on Sept. 1, and to remain at work pending a final settlement. This request the union refused, citing their fixed opposition to arbitration as a result of their experience with it in 1920, which they held demonstrated the unsuitability of delegating important questions to the decision of those outside the industry. During the negotiations the union presented its demands and the reasons for them first; the operators declined to make any important concessions and withheld their answers to the union's arguments until the latter should be all on record. President Lewis of the United Mine Workers of America charged that the operators' committee was without power to make concessions and was not engaging in genuine bargaining, and as a result broke off negotiations. The strike began on September 1 and was completely effective, all workers leaving the mines except those necessary to prevent their flooding. Prices of anthracite rose markedly and before long a serious shortage was in evidence. Local authorities urged the substitution of soft coal, coke or oil, and such substitutions were largely made, although the prices of soft coal and coke also rose considerably.

Governor Pinchot's Plan.—Numerous unsuccessful private attempts at mediation were made during the strike. Governor Gifford Pinchot of Pennsylvania called representatives of the union and the operators to a public meeting on November 28. The union representatives attended, but the operators remained away on the ground that any proposal should have been communicated to them privately before being made public. Mr. Pinchot presented a tentative plan of settlement on the basis of: a wage increase if it could reasonably be made without increasing the price of coal, otherwise no increase; a modified form of the check-off depending on the consent of the workers concerned in each case; an impartial board of seven to examine the accounts of the operators and settle the question of wages after a six months' investigation; work to be resumed on the signing of an agreement embodying the above conditions. The union immediately accepted the proposal as a basis of negotiations; the operators refused it, maintaining that it was unsound economically on account of the provision as to prices, and reiterated their original stand in favor of immediate resumption of work, unconditional arbitration, and provision against future stoppages.

Proposals.—A voluntary committee of 41 prominent economists and engineers addressed a letter to both sides stressing the importance of continuous operation and recommending that the industry remove the basic causes of strife by erecting a "continuing joint agency which will concern itself, not so much with the adjustment of grievances, as with the constructive consideration of the underlying economic and technical facts by which all questions of wages, working conditions and earnings must in the end be determined." It pointed out that a joint effort to improve methods of production and distribution can at the same time increase wages and reduce prices to the consumer. After several other unsuccessful attempts to bring the parties together, they finally agreed on Dec. 24 to resume negotiations without conditions.

AMALGAMATED CLOTHING STRIKE

A bitterly fought strike was that of the Amalgamated Clothing Workers against the International Tailoring Company and the J. L. Taylor Company, with plants in Illinois and New York, which began on July 1, and continued for 19 weeks. It was precipitated by the refusal of the employer to renew his agreement with the union and his announced intention to operate a non-union shop. Drastic injunctions were granted the employer by New York courts. The union was victorious, a new contract being signed and friendly relations reëstablished.

New York dressmakers affiliated with the International Ladies' Garment Workers' Union, numbering 30,000, struck on March 10 in 2,000 shops to enforce a provision of the agreement. The strike was novel in that the strikers reported at their places of work and sat at their machines without working. After six days success was attained. A strike of New York garment workers affiliated with the same union called on Feb. 17 for a wage increase, a 40-hour week and complete unionization, affected 850 shops and was ended by compromise after 20 days.

OTHER STRIKES

One of the longest strikes of the year was that of the 2,360 employees of the American Thread Company at Willimantic, Conn., affiliated with the United Textile Workers of America, against a 10 per cent. wage reduction. This was still in effect on Jan. 1, 1926. Its progress was marked by much hardship and bitterness, and the eviction of strikers from houses which were owned by the company.

A long strike was that of the locomotive engineers and firemen on the Virginian Railway, begun in 1923 as a consequence of the discharge of 12 employees for refusal to operate locomotives which they considered unsafe or dangerous to health, and still continuing in 1925. On Oct. 16 the locomotive engineers and firemen struck for the prevailing national wage increase on the Western Maryland. Though the Labor Board intervened, the strike was continued on account of a dispute about seniority in reemployment of the strikers. Telegraphers struck during the latter part of the year on the Atlantic Coast Line.

A strike of 2,500 municipal employees of Chicago, street sweepers and teamsters, for higher pay, beginning on February 11, was successful after 11 days. Baggage handlers in New York City, 400 employees of a transfer company, struck on August 25 for an eight-hour day and settled on September 16 for an increase of $1.00 per day.

A jurisdictional dispute between plasterers and bricklayers resulted first in strikes of plasterers in numerous cities beginning in June, and later in strikes of bricklayers. This dispute was settled in October at the convention of the American Federation of Labor by the mediation of President William Green. The Boston building trades employees struck on April 1 for wage increases. Settlements were made with several trades at various times and on various bases.

Strikes of bituminous coal miners were called in April by the United Mine Workers for union organization, first in northern West Virginia and then in the Panhandle district. These lasted through the year without conclusive results.

LABOR MEDIATION AND CONCILIATION

By George Soule

Editorial Department, New Republic

Conciliation Bureau.—The conciliation bureau of the United States Department of Labor in the first nine months of the year handled from 40 to 83 disputes each month, directly involving monthly known totals of from 19,000 to 42,000 employees. The smallest total of disputes handled was in August and September, the highest in April; the smallest total of employees known to be involved was in February, the largest in July. The number of disputes adjusted ranged between 20 in September and 48 in April.

Successful Conciliation. — There were few important cases of mediation or conciliation during the year. Attempts to mediate in the anthracite coal strike are described under "strikes and lockouts." An indirect result of the mediation by Governor Smith of New York in the cloak and suit industry during 1924, by means of the appointment of an investigating commission, was seen in the agreement reached on Feb. 24 between the New York Cloak, Suit, Dress and Reefer Makers' Union affiliated with the International Ladies' Garment Workers' Union, and the Association of Dress Manufacturers, fixing the conditions of employment of 30,000 dressmakers. This agreement provided new ways of determining piece rates, provided for the use of the "prosanis" label or sanitary union label on dresses manufactured in shops meeting the standards of the Joint Board of Sanitary Control, and installed a plan of unemployment insurance on the basis of a contribution of 2 per cent. of the weekly wage bill of manufacturers selling directly to the trade, and 1 per cent. of wages by all the workers. The fund was to be administered by a board of impartial trustees. Similar measures had previously been recommended by the Governor's Commission and adopted in the cloak trade.

Conflict with Labor Board.—The movement for a wage increase by the train-service brotherhoods inaugurated in 1924 was brought to a successful conclusion in the first half of 1925 by the signing of agreements between the engineers and firemen and the western railroads. This event was of significance because it marked the success of the attempt by these organizations to carry on negotiations with employers irrespective of the Railroad Labor Board. The general wage increase requested having been refused by the Conference Committee of Managers of the Western Railroads and negotiations having been broken off in May, 1924, the managers appealed to the Railroad Labor Board, which assumed jurisdiction of the dispute and set a date for a hearing.

The brotherhood executives objected to this procedure and announced their intention not to appear. They were subpœnaed by the Board and disobeyed the subpœna in order to make a test case. The subpœna was upheld by the U. S. District Court of Northern Illinois, but later voided by the Supreme Court of the United States. In the meantime the Labor Board, after the appearance of the managers at the hearing, had handed down a decision in the wage dispute which the brotherhoods declined to recognize.

Direct Adjustments with Railroads.—Instead, they entered direct negotiations with the Southern Pacific, and after a strike vote by the employees of that system succeeded in securing the agreement they wanted. The Conference Committee of Managers appealed to the Labor Board to set aside this agreement and enforce its own decision, but the Labor Board refused. Thereafter settlements with the individual western roads were made by the Brotherhoods along the lines of the Southern Pacific agreement. This incident greatly weakened the prestige and powers of the Railroad Labor Board. During most of the time this controversy was in progress the Brotherhoods were supporting a bill in Congress to abolish the Labor Board and substitute a different system of adjustment, while Chairman Hooper of the Board was issuing statements denouncing the executives of the Brotherhoods and defending the Board.

Controversy with the Pennsylvania Railroad.—During the year the Railroad Labor Board heard numerous other cases and handed down many decisions. The two most important were that of Jan. 16 raising the wages of railway clerks on 45 carriers, and that of Jan. 17 in a dispute between the Order of Railway Telegraphers and the Pennsylvania Railroad. A dispute having arisen between the telegraphers and the management, the management refused to recognize officials of the Order as representatives of its employees, but announced its intention to deal with representatives chosen according to its own employee representation system. The Order appealed to the Labor Board. The Board decided that the Order of Railroad Telegraphers was the genuine representative of the Pennsylvania telegraphers, and set a date for a hearing of the dispute. At this hearing the management failed to appear. This controversy was similar to several previous ones in which the Pennsylvania displaced national unions in favor of its own employee representation system, and refused to recognize decisions of the Labor Board concerning the conduct of elections or the question of representation.

Colorado Commission.—The only other governmental adjustment body of importance operating during the year was the Industrial Commission of Colorado. Under a state law no strike or lockout may be declared until the Commission has investigated the dispute and rendered a decision, acceptance of which is not compulsory. In April about 30 disputes arose concerning demands of coal mine managements for a 20 per cent. wage reduction. In about two-thirds of these cases the reduction was agreed to by the employees; in the other third the Commission decided in its favor. Later the Commission declined to sanction further reductions to the 1917 scale.

Impartial Chairmanship System.—The system of impartial chairmanship maintained jointly by union and employers to decide disputes arising under collective agreements in the men's clothing industry continued to operate successfully in Chicago, New York, Rochester, Baltimore and Milwaukee. Most of the decisions concerned technical matters and carried on the process of building up the "common law" of the industry. A similar system which had been set up two years previously by an agreement between the Haverhill shoe manufacturers and the Shoe Workers' Protective Union was abolished by vote of the workers, though there remained a possibility that it would be reëstablished by a new agreement in the course of the year 1926.

EMPLOYMENT

By John B. Andrews

Secretary, American Association for Labor Legislation

CONDITIONS

General Indices.—The general indices of employment from 1914 to 1925—compiled by the U. S. Bureau of Labor Statistics (*Monthly Labor Review,* November, 1925) from monthly reports of number of employees in over 9,000 manufacturing establishments of fifty-two industries in chief centers of the United States—using the average of monthly reports for 1923 as a base, were as follows:

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
94.9	97.0	110.4	115.0	114.2	108.2	109.9	85.1	88.4	100.0	90.3	90.8

The average was 90.8 for the first nine months of 1925 and showed an increase of employment of one-half of one per cent. over the average for 1924. The only years in which employment indices were lower were 1921 and 1922, while the indices for the two slack years 1914 and 1915, the greatest preceding depression, were considerably higher than for 1925. Comparison of the monthly indices for 1925 showed remarkable uniformity, the extremes being 92.3 for March and 89.3 for July. Comparison of groups of industries also revealed remarkable uniformity. The average indices for the twelve groups of manufacturing industries fell between 90 and 93.5, with the exception of manufactories of steel, iron and their products, and textiles and their products, which fell below 90, and paper and printing and stone, clay and glass products, employing relatively few workers, which averaged above 95. A more detailed examination of the steel and textile groups which together employ about half of all workers engaged in manufacturing, showed that in textiles, in which the general employment average was 89.1, the manufacture of cotton goods had the lowest average, 83.8. In the steel and iron group averaging 86.9 the manufacture of machine and foundry products and of stoves fell considerably below that of steel and iron itself.

Building Trades. — These indices, though based upon the manufacturing industries alone, which employ about one-third of the total number of wage workers, are the best single measure obtainable of the general condition of employment. Available statistics for other occupations tell much the same story. The number of employees on class I railroads for the first eight months of 1925 was 92.5 per cent. of the number in 1923. The slightly higher average than in manufacturing is doubtless chiefly due to shipment of materials used in construction, the one large industry which had steadily increased since 1923. Construction in 1920 employed less than one-twelfth of all wage workers. According to the index issued by the Associated General Contractors of America, based upon record of material shipments, the volume of construction in the United States, during the first seven months of 1925 was 5 per cent. greater than that for the corresponding period in 1924 and the total volume for 1924 was 4 per cent. greater than that for 1923.

Coal Mining and Agriculture.— Figures on employment in coal mines formerly furnished by the geological survey were no longer available. The latest official reports of the annual number of days' operation was for 1923, 179 days in bituminous and 268 days in anthracite mines, and for 1924, 171 in bituminous and 274 in anthracite, as compared with an average for the preceding ten years of 204 in bituminous and 251 in anthracite.

Satisfactory employment statistics on agricultural labor were, as always, lacking. Such as we have, chiefly from the Wisconsin Industrial Commission and U. S. Employment Service, indicate that demand for farm labor decreased from 1923 to 1925.

Over-developed Industries.—In his annual report for the year ending June 30, 1925, page 103, Secretary of Labor Davis says: "One of the great elements of the problem of unemployment . . . is the present over-developed state of some of our large industries. Our productive machinery and equipment in many of these industries cannot run for 300 days in the year without producing a stock that cannot be sold in this country nor in any or all other countries." He illustrates by figures from the 1920 United States Census in regard to several industries. In the boot and shoe industry there were 1,570 factories of which 227 or 14½ per cent. employed 60 per cent. of all workers in the industry and manufactured 65.6 per cent. of all boots and shoes produced, and could with steady work for 300 days a year produce all that could be sold. Similarly 12.8 per cent. of the flour mills, employing 42 per cent. of the workers, produced 62.1 per cent. of total barrels of product and could with full time work produce practically all the market demands. He adds:

"Go down the line and in nearly

every industry you will find the same appalling condition of affairs. What is needed is some system which will keep going only the coal mines and the manufacturing plants needed to produce what we need and can sell and to keep an adequate number of workers employed for 300 days in the year, while the unnecessary mines and plants can be closed or held in reserve. We need some system for scattering unneeded workers in any industry where they are really needed in industry yet to be developed. If this cannot be permitted under the existing laws, then there must be a way of modifying them so as to permit it without incurring any other more serious consequences."

Employment Service.—The director of the U. S. Employment Service reports coöperation with public employment agencies in 187 cities of thirty-nine states and the District of Columbia, which placed 1,609,977 wage earners during the year ending June 30, 1925. The farm labor division increased its activity by opening several new branch offices in the west. At the end of the year it served fully one-half the territory of the United States, meeting the seasonal labor needs of more than a dozen major crops. From a field activity supplying from 70,000 to 80,000 seasonal laborers in 1921 it had grown in three years to a service that in the year under review recruited and directed to employment more than 400,000 seasonal laborers to assist in caring for and harvesting farm crops valued at upward of two billion dollars. It also placed in monthly and yearly employment 16,411 farm hands. Secretary of Labor Davis, in his recommendations, states that the employment service can never realize the height of its usefulness until it becomes a statutory bureau with a permanent policy and program. We might add, and until adequate appropriation is provided. The federal appropriation for 1925 was $205,000 as compared with $206,284 in 1924 and $210,000 in 1923 and $400,000 in 1920. Six states, Iowa, Michigan, Minnesota, North Carolina, Oregon and Wisconsin strengthened regulation of private employment bureaus by legislative action in the course of the year 1925.

PUBLIC WORKS

Suggestion.—On January 12, President Coolidge in an address to the Associated General Contractors of America, recommended the idea of utilizing construction, particularly of public works, as a method of stabilizing employment in times of depression. He said: "Most forms of government construction could be handled in conformity to such a policy once it was definitely established." Unfortunately, when during the following month, millions of public money was being appropriated for government building construction, the national administration failed to exert itself in support of a provision for the application of the above principle.

Bill.—On February 11 the U. S. Senate Committee on Public Buildings and Grounds held a hearing on the bill authorizing the appropriation of $150,000,000 for public buildings, not more than $25,000,000 to be spent *in any year*. An amendment was presented permitting more than $25,000,000 to be spent in years of industrial depression and unemployment in order to stabilize industry and employment.

Otto T. Mallery presented resolutions and communications from the President's Conference on Unemployment, the American Engineering Council representing about three-fourths of the engineers of the country, the Associated General Contractors of America, the American Association for Labor Legislation, all organizations in whose behalf he spoke. The bill was withdrawn with the expectation of revival in the next Congress.

Proposed Department of Public Works.—The American Engineering Council, assisted by an advisory council representing organizations engaged for the most part in engineering, architecture and construction, continued to prepare for a campaign to create a department of public works in the executive arm of the United States government, which would facilitate coördinated planning for public works in times of depression.

Bankers' interest in such a movement was indicated by a bulletin issued in 1925 by the Chase National Bank of the City of New York, which advocated long-time programs of federal, state and municipal construction with a view to timing public expenditures to periods of business depression and provision of state revolving funds for working capital to alleviate injudicious borrowing.

A bill providing for advance planning of public works and a reserve fund of $50,000 for periods of industrial depression was introduced in the Massachusetts legislature and was referred by both houses to the next annual session.

Unemployment Insurance. — The former Huber bill providing for unemployment compensation was re-introduced by Senator Heck in the Wisconsin legislature and similar bills were introduced in Minnesota and discussed in Illinois and California.

Probably the greatest advance in unemployment relief was along the line of unemployment insurance through funds created by joint agreement and contributions of trade unions and employers (*International Labour Review*, March, 1925, pp. 318-328). This arrangement in the Chicago Amalgamated Clothing industry had been functioning since April, 1923. During the year ending April 30, 1925, $1,609,629 was paid in unemployment benefits to workers. Contributions for the two years were over $2,000,000. The expense of administration amounted to only 5 per cent. of the total income and difficulties of administration were notably few. (*Monthly Labor Review*, November, 1925, p. 133.)

Funds established in New York by the International Ladies' Garment Workers' Union and employers and by the hat and cap industry, had been paying benefits since June, 1925. Similar arrangements had been established for the International Ladies' Garment Workers of Cleveland, Ohio, and hat and cap makers of all the principal markets, including Boston, Philadelphia, Chicago, St. Paul, and Baltimore. (*American Labor Legislation Review*, September, 1925.) According to the National Industrial Conference Board, 134,000 workers were thus protected, including workers in the wall paper industry in nineteen plants in various sections of the United States. (*Industrial News Survey*, May 25, 1925.)

Unemployment Funds.—Unemployment funds were inaugurated by employers in an increasing number of plants. The president of a large life insurance company announced in December that his company was ready to undertake the experiment of unemployment insurance if the necessary amendment of state insurance laws could be obtained. His proposed system would resemble group health insurance to which both employer and employees would contribute.

WORKMEN'S COMPENSATION AND HEALTH INSURANCE

By Paul H. Douglas

Professor at University of Chicago

Extent.—In 1925 some slight gains were made in the liberalization of the laws providing compensation for workmen injured in industry. The legislature of one additional state, Missouri, enacted such a measure but a popular referendum on the act has been called for 1926. If it is ratified, Missouri will be the forty-third state to have such a law. The five other states without such a measure are Arkansas, Mississippi, Florida, South Carolina and North Carolina. Congress has not yet provided such a system for private employment in the District of Columbia.

Fields.—These laws generally cover the field of manufacturing but interstate commerce is exempted as is agriculture and domestic service, save in the case of New Jersey. In fourteen jurisdictions, employers in the lines of industry covered by the act must come under its provisions, but in thirty-two they may elect whether or not to do so. Those who in this latter group of states refuse to come under the scope of these laws lose the three common-law defenses of assumption of risk, contributory negligence and negligence of a fellow-servant which were their chief legal bulwarks under the system of employers' liability. The vast majority of employers for these reasons do choose to come under the compensation laws.

In thirteen states the law is now so interpreted as to apply to the clearer cases of occupational diseases as well as to accidents. Save in South Dakota and Oregon, a waiting period is required after the disability is incurred for which no compensation is paid. There has been a noticeable tendency in recent years to decrease the length of this period and in nearly two-thirds of the jurisdictions it is now seven days. In several states, however, ten and fourteen day waiting periods prevail and among these is Pennsylvania.

Types of Benefits.—The two types of benefit provided are (1) cash and (2) medical and hospital care. There are four main types of industrial injury for which cash compensation is paid, namely, temporary total, permanent partial, and permanent total disability, and death. The amount paid out is limited in three further ways, namely, (*a*) by allowing compensation to be paid only up to a certain percentage of the worker's wage; (*b*) by fixing a maximum amount in dollars which can be paid weekly; and (*c*) in the case of permanent injuries and of death, by limiting the number of weeks during which compensation may be paid.

Amounts.—Nearly one-half of the jurisdictions allow less than 60 per cent. of the worker's wage, although there are seventeen that prescribe either 65 per cent. or two-thirds. Eight states, including Pennsylvania, Indiana and Michigan, allow less than $15 a week as a maximum, while only nine permit more than $18 a week to be paid. When these are combined with the waiting period provisions, the proportion of the financial loss which is thrown back upon the shoulders of the injured workmen is startling. Thus a worker in Pennsylvania who was earning $40 a week and was disabled for four weeks would not receive any compensation at all for the first ten days and only $12 a week for the remaining two and a half weeks. The total amount of compensation paid would therefore be $30, or less than 20 per cent. of the wage loss that the worker had suffered.

The benefits for death and permanent total disability are generally not allowed for more than a given number of weeks. For death this ranges between five and ten years, while for permanent disability there is a tendency to allow a longer period of time. A number of states also graduate the percentages of earnings which are paid in these cases according to the number dependent upon the worker.

Permanent partial disabilities, such as the loss of a hand or other member, are compensated for either by the payment of compensation for a given number of weeks, or by a percentage of the loss in actual earning capacity which the worker suffered. All of the jurisdictions now provide for some medical attention although the amounts permitted are in general too low.

Insurance by Employers.—In order to protect the injured workers from possible loss through the bankruptcy of their employers, virtually every state requires the employers to insure. The three main agencies for this purpose are: (1) private insurance companies, which are generally stock companies although mutual associations of employers are quite strong in Massachusetts; (2) Self-insurance, if the employing body is sufficiently large and is solvent. This, however, is prohibited in Massachusetts; (3) State funds, which may be given a monopoly of the business as in Nevada, North Dakota, Ohio, Oregon, Porto Rico, Washington, West Virginia and Wyoming or may merely compete with private agencies as in the other states, of which the most notable example are the funds of California, New York and Pennsylvania.

Inadequacies.—The chief inadequacies of our workmen's compensation laws lie in the insufficient benefits that are paid. Dr. E. H. Downey estimated that taking the country as a whole, industry bore only "one-third of the economic cost of those injuries which are subject to compensation." When allowance was made for those industries and employees who did not come within the scope of the laws, he declared that "four-fifths of the wage loss resulting from injuries in the course of employment still falls upon the individual victims thereof." The laws are being slowly liberalized but much more rapid progress is needed if the burden of industrial accidents is to be placed in practice, as well as in theory, upon the industry itself. The chief lines of reform would seem to include: (1) the widening of the scope of compensation legislation to include more states, together with such exempted employments as inter-state commerce; (2) the shortening of the waiting period to at least one week and preferably to three days; (3) the raising of the proportion of wages to be paid to approximately two-thirds; (4) either abolishing the maximum limit to be paid per week or greatly increasing it to allow for the great increase of money incomes in recent years; (5) the granting of longer periods of benefit in the case of death or total disability; (6) the graduation of disability benefits according to the number dependent upon the worker; (7) the granting of an increased amount of medical and hospital care.

Health Insurance Movement.—The organized movement to secure the passage by the various states of compulsory health insurance laws which would provide medical and cash benefits during the illness of industrial wage-earners has for the present spent its momentum. This movement was led by the American Association for Labor Legislation. A number of powerful groups came to oppose it, including the private insurance companies, the major part of the medical profession, the Christian Scientists, and the general run of business men. The post-war reaction against social legislation of all varieties directly operated against the passage of such laws, while the failure of the American Federation of Labor to support the proposal deprived the movement of its strongest potential source of support.

Voluntary Health Insurance.—But while compulsory health insurance has been defeated for at least the present, there has been an increasing voluntary installation by business firms of various forms of benefit associations, now numbering over 800, which assist the workers in the given company during the periods of their illness. The forms which these benefit associations take are many. The workers are the sole contributors to some; the employers to others, while many are supported by joint contributions. The management of the funds tends to be parallel with the source of the contributions. The cash benefits paid are sometimes flat sums but in other instances are graduated according to the earnings of the worker.

An interesting experiment has been carried on for a number of years in Flint, Michigan, where a number of firms have coöperated to set up and maintain an interplant fund and a common medical service for the employees of the several companies.

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OLD AGE PENSIONS

By Paul H. Douglas

Professor at the University of Chicago

Public Systems.—The old age pension movement in this country is growing from two sources. The first is through the passage of pension acts by state legislatures, while the second is by the establishment of such systems by private corporations. In 1923, as a result of the active campaign which was carried on by the Fraternal Order of Eagles, the states of Nevada, Montana, and Pennsylvania passed substantially similar pension acts. For a person to satisfy the requirements for eligibility, the Pennsylvania and Montana statutes required that he be seventy years of age; in Nevada sixty years; residence of fifteen years in Pennsylvania; ten years in Nevada.

The amounts to be paid out in pensions were to be adjusted in each specific case, but together with all other income of the recipient, the maximum must not exceed $7 a week in Pennsylvania and $25 a month in Montana.

The financial burden of payment was placed upon the countries, with general supervision of expenditures by a state board. The total number granted pensions in the three states was approximately 3,100. The average pension granted in Montana amounted to $87 a year, in Nevada to $240 and in Pennsylvania to $244. In 1924 the Pennsylvania law was declared by the courts invalid on the ground that it violated a provision in the state constitution forbidding charitable grants of public money to private individuals. In 1925, Wisconsin passed an old age pension act modelled upon the lines of the Pennsylvania law, and a grant of $200,000 from the state treasury assisted the counties in bearing the financial burden.

Private Systems.—Within recent years a large number of private companies have adopted old age pension plans for their employees. These are of two main kinds, non-contributory, in which the company bears all the expense, and contributory, in which it is jointly met. Both types usually require that the recipient must reach a given age, generally 60 or 65, and a length of employment by the company, which ranges from 15 to 25 years. A requirement for continuous service is a strong force tending to prevent the older employees from going out on strike.

The amount of the annual pension is generally determined by multiplying the average earnings over a period of years by the number of years worked, and taking some fraction of the result, generally 1 or 2 per cent. In contributory funds, the worker upon withdrawing from the company, almost invariably has a right to the amount which he has contributed. Dependents are also given rights in case of the death of the workman before or after reaching the pensionable age.

Absorption of Concerns.—A very important case bearing on the rights of workers to such pensions was decided in the Illinois courts in 1925. In 1909, Morris and Company, the large meat packers, instituted a contributory pension plan. This firm was afterward absorbed by Armour and Company; and the new owners, because of the expense involved, altered some of the features of the pension system. A number of workers brought suit to recover the privileges which were theirs under the original plan. Amongst other points, they alleged that in some cases the prospects of a pension had been used to retain men in the employ of the company at less wages than they could have secured in the market. The pensions were therefore, it was claimed, in the nature of deferred pay and should not have been taken away from the men who had in reality earned them. The court ruled, however, that the company's contribution to the pension fund was in the nature of a gratuity which could be withdrawn at will.

Insurance System.—The Metropolitan Life Insurance Company has developed a pay-as-you-go pension plan whereby an employer may give to each worker at the end of each year of service, a certificate entitling him to an annual income of $10 when the worker reaches the age of, say, sixty-five. This means that the worker will secure some protection for old age, growing with each year's work. It will consequently not be necessary for him to serve the full quota of years of service before he can secure anything.

WAGES AND HOURS OF LABOR

By John Gould Curtis
Of the Pennsylvania Bar

Basis of Wages.—Throughout the industrial world the tendency has become more and more marked to treat the rising or falling costs of staple commodities as a reason, if not an actual basis, for the readjustment upward or downward of the scales of payment to wage-earning employees. Any discussion of wage rates is inevitably accompanied by elaborate tables indicating the cost of living in the community under consideration, such tables being commonly referred to the standard of the last prewar year, 1913.

An able, impartial, and exhaustive compilation of statistical material is to be found in the *Monthly Labor Review*, published by the Bureau of Labor Statistics of the Department of Labor. For the most part its records are substantially contemporary; that is to say, published within a few months of the time to which they relate. Occasionally the statistical tables cover previous years. They are too elaborate to be reproduced here in detail, but summary material may be presented.

Living Costs.—Thus the per cent. of increase in cost of specified food articles on January 15 of each specified year, compared with January 15, 1913, shows summary figures as follows:

1919	88.4	1923	46.9
1920	104.8	1924	51.7
1921	75.4	1925	57.0
1922	44.5		

These figures are based on nation-wide reports of prices of common cuts of meat, poultry, canned salmon, fresh and evaporated milk, butter, oleomargarine, cheese, lard, eggs, bread, flour, cereals, macaroni, rice, navy beans, potatoes, onions, cabbage, canned vegetables, sugar, tea, coffee and common fruits. These are commodities essential to a well-balanced, varied and palatable diet, and it seems conceded that workingmen ought to be able to earn enough to make reasonable provision for themselves and their families.

As compared with January 15, 1924, average food costs on January 15, 1925, were but 3.5 per cent. higher, articles which had varied in excess of 10 per cent. were:

Pork chops	+ 12
Butter	— 15
Lard	+ 22
Eggs, strictly fresh........	+ 29
Eggs, storage	+ 39
Flour	+ 33
Corn meal	+ 23
Corn flakes	+ 12
Potatoes	— 11
Corn, canned	+ 11
Sugar, granulated	— 21
Coffee	+ 35
Bananas	— 14
Oranges	+ 12

The substantial increase in cost of many important staples makes it obvious that living expenses increased rather more than the 3.5 per cent. average would indicate. Prices on September 15, 1925, show an average advance of 8.3 per cent over those for September 15, 1924.

Coal, an essential in almost every home, is slightly less costly than it was in 1924; the same is true of clothing.

Purchasing Power.—In the purchase of all commodities, the dollar of 1913 is worth more than it was in 1920 but has been losing ground since 1921.

The purchasing power in cents for June in each of the years listed was:

1920	41.1	1923	65.1
1921	70.6	1924	69.2
1922	66.8	1925	63.5

Wages have in general tended upward as the dollar has become less valuable; an elaborate tabulation covering twenty occupations and forty principal cities from 1913 to 1925 may be found in the Monthly Labor Review, XXI, 54-76.

Hours of Labor.—These are recorded also in the table just referred to. The 44-hour week is strikingly preponderant throughout the unionized occupations, with the notable exception of newspaper compositors and typesetting-machine operators. The year has witnessed no general or marked change in this respect.

It is pertinent to observe that the diminution of working hours and the frequently concomitant increase in weekly wage, as compared with earlier years, has in many instances resulted in a lessened labor cost per unit of the finished product in manufacturing industries. Secretary of Labor Davis has pointed out that the increase wrought in the value of raw material by manufacturing processes in 1923 was 41.1 per cent. greater than in 1921, although the number of workers increased only 26.2 per cent. and the amount of wages paid, 34 per cent. This increased efficiency of the individual employee must be considered in weighing the justice of his claim for an increased reward.

Agricultural Labor.—Farmers have been for so long dependent upon migratory labor that it is difficult to make them appreciate the value of budgeting their labor requirements, so to say, and filling them through established state or federal agencies instead of engaging applicants who come to the gate. The former method makes possible the securing of experienced workers from adjacent communities—reliable and reputable individuals who may be reëmployed from year to year, to their own advantage as well as that of the farmer. The Farm Labor Bureau of the Department of Labor Employment Service mobilized through its Kansas City office, in 1924, 100,000 wheat harvesters, 200,000 cotton pickers, and other workers bringing the total to nearly half a million for the season. The Oregon Department of Labor exemplifies a first-rate state enterprise with the difficult problem of marshaling workers to care for various crops from the strawberry harvest in May until the last of the Hood River apples are picked in November.

Farm employment has been unattractive for years because of the long hours that it involved; more recently, farm employers, in recognition of this feeling and as a concession to the aversion for the old sunrise-to-dark agricultural work-day, have taken steps to put agricultural labor on something more nearly approaching a shop basis. There has been no general organization, but assistance was becoming hard to get, and the need for help had to be weighed against the giving up of an immemorial custom; the custom is losing.

Agricultural wages.—These have, from the nature of things, ordinarily included board and shelter. Figures are available showing the average prevailing monthly farm wage rates, both with and without board, but the rates without board are alone reprinted here:—

	United States	North Atlantic States	East North Central States	West North Central States	South Atlantic States	South Central States	Western States
1920	$65.05	$76.18	$70.71	$80.12	$47.37	$52.07	$99.81
1921	43.58	57.92	49.19	50.33	31.31	33.21	68.82
1922	42.09	56.51	47.03	47.59	30.71	32.16	66.98
1923	46.74	63.54	53.81	52.67	34.75	35.06	72.24
1924	47.22	65.58	53.80	51.22	36.06	36.19	71.25
1925							
Jan. 1 ..	45.04	62.42	50.39	46.20	35.37	35.25	69.29
Apr. 1 ..	47.40	66.30	54.10	52.89	36.03	35.55	71.42
July 1 ..	48.55	67.34	54.45	54.14	37.41	36.56	73.74

Timber Industry.—In the summer of 1925 an elaborate survey of labor in sawmills was undertaken, and statistics gathered from mill payrolls were compiled and published in the Monthly Labor Review, XXI, 978. To take the two most significant classes of employment: in 274 establishments, 644 head band-sawyers were employed an average of 57.7 full-time hours per week at an average of $0.877 per hour or $50.60 per week; earnings ranged from $39.67 per week in Pennsylvania to $63.54 in Florida. In 299 establishments, 36,698 laborers were employed an average of 57.5 full-time hours per week at an average of $0.309 per hour or $17.77 per week; earnings ranged from $10.48 per week in South Carolina to $25.27 in California.

Index numbers have also been compiled, showing full-time hours per week, earnings per hour, and full-time earnings per week in the lumber industry in specified years. These are referred to the 1913 basis; thus the index number 92 in the first column for 1919 indicates that the number of full-time hours per week in that year was 8 per cent. less than in 1913. But except with reference to 1913 the figures cannot be interpreted in percentages; thus the per cent. of increase for 1921, represented by the index 94, over 1919, must be obtained by dividing the index for the later year into that for the previous one.

Year	Full-time Hours per Week	Earnings per Hour	Full-time Earnings per Week
1913......	100	100	100
1915......	100	91	91
1919......	92	194	179
1921......	94	166	156
1923......	94	180	170
1925......	94	178	168

Mines.—One of the outstanding problems of the past year, as of several previous ones, has been in the anthracite coal mines of Pennsylvania. The frequent strikes have been of marked significance because of the wide reliance on anthracite coal for household use, the small stocks commonly kept on hand by individual consumers, and the consequent promptly felt effects of a cessation of supply.

The agreement reached in 1923, and in force until August 31, 1925, was arrived at following the recommendations of Governor Pinchot; it confirmed the award of the Anthracite Coal Strike Commission of 1920, and subsequent agreements, except in details specified (*Monthly Labor Review*, XXI, 81), which amount substantially to allowing a 10 per cent. increase in wage to mine laborers. An effort to secure further concessions from the operators on the expiration of this agreement was unsuccessful; detailed reports of the conferences are not yet available.

A summary of wages and hours of labor in metalliferous mines, as of the summer of 1924, has been printed in the *Monthly Labor Review*, XX, 1033. It covers 117 underground and 20 open-pit mines in fourteen states, and tabulates the hours and earnings of each class of labor in each of the groups of mines.

Manufactures.—It is impossible to undertake here any survey of manufacturing industries generally throughout the country. Figures from the New York State Department of Labor are, however, of especial value because they show the variation between city wages and those for the state generally; the following limited table was compiled to show average weekly earnings for May, 1925:

Industry	All Employees		Shop Employees, State	
	Whole State	N. Y. City	Men	Women
Stone, clay, glass......................	$28.87	$37.36	$30.59	$15.05
Metals, machinery and conveyances........	30.56	29.61	31.69	16.51
Wood manufactures	27.80	29.97	29.03	16.31
Furs, leather, rubber....................	26.06	28.70	27.97	16.14
Textiles	22.11	22.93	26.93	15.68
Clothing, millinery, laundering, etc........	23.82	27.16	30.55	17.54
Food, beverages, tobacco................	26.41	26.33	30.84	16.85
Water, light, power.....................	34.01	33.14	34.01	....
Grand total	$28.07	$29.30	$31.33	$16.96

The Industrial Bulletin of the New York State Department of Labor published in August, 1925, statistics on the average weekly earnings in representative New York State factories. 1914 to 1925. The figure for 1925 is based on the first seven months only. All employees in both office and shop are included.

1914	$12.48	1920	$28.15
1915	12.85	1921	25.72
1916	14.43	1922	25.04
1917	16.37	1923	27.24
1918	20.35	1924	27.68
1919	23.50	1925	28.05

There is available also a general index of pay-roll totals in manufacturing industries, to June, 1925; these are based on nation-wide reports, and the index is referred to the standard of 1913:—

1916	$61.9	1919	103.6
1917	76.3	1920	125.9
1918	96.7	1921	80.0
1922	79.9	1924	90.6
1923	100.0	1925	93.7

Transportation.—No compilations of statistics relating to railroad employees are available; but the decisions and awards of the Railway Labor Board are published currently in the *Monthly Labor Review* and desired information as to the present condition of any specific employment may be found there.

Illuminating information on the wages of seamen, as of January 1, 1924, is to be found in the *Monthly Labor Review*, XX, 1039. American seamen are altogether better paid than those of any other nation, with the exception of cooks and members of the engineer's department, toward whom the French are especially generous; Shipping Board employees enjoy for the most part slightly higher wages than those on privately owned ships.

LABOR REPRESENTATION IN BUSINESS MANAGEMENT

By Paul H. Douglas

Professor at the University of Chicago

Works Councils.—Perhaps the most noteworthy development of the last six years in the field of industrial relations has been the growth of works councils, or, as they are frequently called, shop committees. These are bodies which represent the workers in an individual plant or company, and which deal with their common employer. They differ from the union type of organization in that the latter combines the workers of a number of concerns into one organization and then bargains not so much with individual employers as with those of the locality or trade as a group.

The growth of the movement in recent years is shown by the National Industrial Conference Board to have been as follows:

Year	Number of Work Councils	Number of Employees Covered by Plans
1919.........	225	391,000
1922.........	725	690,000
1924.........	814	1,177,000

The works council movement at the present time includes approximately one-third as many workers as the trade-unions of the country. These councils are almost wholly confined to "open shop" firms that do not deal collectively with the unions and hence form intra-shop agencies for collective bargaining. This is in sharp contrast to the works councils of England and Germany which exist primarily in unionized shops, with the wage scale for the industry fixed by agreement between the unions and the employers' associations.

Size of the Councils.—The works councils are predominantly confined to those large establishments where personal relations have broken down but where the unions have not been strong enough to gain a foothold. Only 43,000 of the wage-earners that come under the scope of the council system are in firms employing under 1,000 workers. One and one-eighth million are in firms with over 1,000 workers; and over seven hundred thousand are in firms employing over 15,000 persons. Approximately one-third of the employees in manufacturing and railroading enterprises with over a thousand workers are represented by some form of shop committee.

Types.—There are three main structural forms of employee representation. The first is the simple town-meeting form practised by small firms such as the Columbia Conserve Company and by such larger firms as the A. Nash Company. Here a general meeting of the employees is held. This is patently more adapted to smaller concerns than to the larger. The second is the governmental or so-called "industrial democracy" type fostered by Mr. John Leitch. This consists of a House of Representatives elected by the workers, a Senate comprised of the foremen, and a Cabinet composed of the executives. The difficulties created by this separation of the groups have led a number of companies to dissolve the senate and to provide for joint meetings, and thus to merge into the third type. This is one of joint committees where representatives of both groups meet to discuss and to pass upon certain problems. This is by far the predominant type and is characteristic of such large concerns as the Pennsylvania Railroad, the Colorado Fuel and Iron Company, the International Harvester Company, the various Standard Oil Companies, the large meat packing firms and such important public utilities as the Peoples Gas, Light, and Coke and the Commonwealth Edison Companies of Chicago. In addition to these types of representation, some companies, such as Procter and Gamble, and the Dutchers Bleachery, have representatives of the manual workers upon the Boards of Directors.

Authority of Councils.—An examination of the constitutions and activities of these councils indicates that in by far the vast majority of cases, the works councils have only advisory powers. This is clearly the case in the industrial democracy plans where the Senate or Cabinet may negative the proposals of the House. In the great preponderance of cases, the decisions of the joint councils even when made are not finally binding upon the executives, while in the event of deadlock between the two groups on the joint council, arbitration is rarely compulsory. Exceptions to this latter tendency are however the Philadelphia Rapid Transit Company, the Peoples Gas, Light and Coke Company, and the Commonwealth Edison Company of Chicago.

Results.—The various plans have without doubt been of use in helping to restore the personal relationship between the executives and the manual workers. They have facilitated the adjustment of personal grievances and have in some cases led to increased production on the part of the men. The chief point at issue is as to whether they are an adequate substitute for unionism. Recent studies by the Russell Sage Foundation of the employee representation plans of the Colorado Fuel and Iron Company and the Dutchers Bleachery show that the basic wage scales in these companies depend on the prevailing rates in their industry as a whole. The council is relatively powerless to keep wages in any one company much, if at all, above the competitive level. This is openly stated in the basic agreements covering the plans of the Colorado Fuel and Iron Company, the Standard Oil Company, the Philadelphia Rapid Transit Company and is acted upon in other companies as well.

Some students of the subject have pointed out that in an industry which is not unionized, the employees of a company with a shop committee are in a relatively helpless position. The pressure of the wage-cuts in other plants forces even such philanthropically minded employers as the Dutchers Bleachery to reduce wages. In a unionized industry, however, the strength of the union makes wage-cuts more difficult and perhaps increases wages more readily. This makes it possible for the plants with shop committees either not to cut wages or to increase them. But these gains (in general), it is pointed out, are dependent upon the efforts of the unions and not upon those of the shop committees.

Disagreements.—Finally, it is queried, aside from those cases where arbitration is compulsory, what recourse have the workers under the shop committee system, if they disagree with the employers? They have virtually no funds to sustain them if they were to strike; nor would organized workers feel any loyalty to them; and hence it would not be very difficult to secure others to take their place. If organized in a union, they would be strengthened in both these respects; and this would enable them to secure a more favorable division of the product.

In brief, it seems probable that the shop committee system is admirably adapted to secure an increase in the total amount of the product and to make local adjustments much less difficult. From the standpoint of the workers, it would seem inferior, however, to unionism in securing for the workers a larger share of the product. A combination of the two types of organization would, therefore, appear to be desirable. This combination is being worked out with conspicuous success in the men's clothing industry and in the repair shops of a number of railroad companies.

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LABOR COLLECTIVE BARGAINING

By Paul H. Douglas
Professor at the University of Chicago

Trade-unionism has its greatest strength in the five industrial groups of coal mining, building, transportation, clothing, and printing. In 1923 the union membership in these industries included approximately 2,700,000 workers, or 70 per cent. of the total number of those in trade unions in this country. There is comparatively little unionization in the iron and steel mills, or in the metal, chemical, rubber, lumber, meat-packing, and automobile industries. Collective agreements are consequently few in these industries and such union men as are employed are generally found working along with non-union employees.

Since effective unionism is largely confined to the five industrial groups first enumerated, the major part of our attention should be devoted to them. The miners' union was engaged in a difficult struggle throughout 1925. The Jacksonville agreement of 1924 provided for the continuance of the then existing wage scale during the next five years in the central competitive field. The union, however, did not succeed in successfully unionizing the southern counties of West Virginia, nor those of Kentucky and of Somerset County, Pennsylvania. These mines, many of which are favored with thick seams of coal, resumed operations at an appreciably lower wage scale than those of the union districts. They were consequently able to undersell most of the mines in the unionized districts, and to take a large part of the market away from those with union agreements. This result was enhanced by the fact that a large percentage of mine capacity is never utilized and this likelihood of suspension of work consequently tends to concentrate itself upon those mines with high unit costs. The business relapse since 1923 has decreased the industrial demand for coal and therefore increased the idle capacity of the industry. The union mines in the central competitive field have in consequence been scarcely able to offer three days of employment per week and in many cases even less. The employers in union mines consequently are anxious to have the Jacksonville scale reduced in order that they may compete more successfully, but this the union has refused to permit. A number of mine operators in the central part of West Virginia have canceled their agreements and are now operating on a non-union basis with a lower wage scale. Other union operators are distinctly restive and it seems an open question whether the union can long maintain the Jacksonville scale.

The agreement in the anthracite branch of the industry expired in September, 1925. The miners demanded a new contract which would embody the following principles: (1) a 10 per cent. increase in tonnage rates and a flat raise of $1 a day for the day workers; (2) the establishment of the "check-off" system whereby union membership is made compulsory. Under this system the coal companies deduct the union dues from the pay of the workers and turn the receipts over to the unions. This practice is followed in the unionized districts of the soft coal industry. (3) The improvement of a number of working conditions, such as freeing the owners from paying for the miners' tools; allowing them to take charge of paying their own laborers; and providing an increased number of openings in their veins to permit more ventilation. The mine operators refused to agree to these conditions, but suggested arbitration, which President Lewis of the miners rejected on the ground that from past experience the men could not trust arbitrators. On September 1, 1925, virtually all the anthracite miners, to the number of 150,000, went out on strike. At the time of writing (November 15), the struggle was still deadlocked and there were no immediate prospects of settlement.

Few changes are noted in the building situation during the year. Construction continued briskly and union wage rates rose slightly. The campaign waged by the employers in Chicago against certain building trades unions that refused in 1922 to conform to the arbitration decision of Judge Landis, seemed to have spent its force; and the unions were recovering their strength. In New York, the building trades unions were still as strong as ever, certainly in most of the large cities in the East and Middle West. In the smaller cities and towns, however, their hold was much less secure, while in the South the non-union shop was more characteristic. In California the employers' associations seemed to be maintaining the supremacy which they had previously gained.

The chief event in the clothing industry has been the gradual inclusion in trade agreements of provisions granting protection against unemployment, jointly financed by employers and workers. The agreement negotiated in 1923 in the Chicago market by the Amalgamated Clothing Workers was the first to set up such a fund. During the year a similar fund has been established in the New York market of the same industry. The new agreement negotiated by the International Ladies' Garment Workers for the women's clothing industry of New York City also provides for an unemployment insurance fund, as do those secured by the Cloth Hat and Cap Makers in the New York, Baltimore, Philadelphia and St. Paul markets.

The difficulties of maintaining a stable agreement in the women's clothing industry of New York have been heightened by the increasing tendency of the industry to split up into a large number of small contract shops. Supervision over these and the maintenance of uniform standards of hours and wages have become more difficult. In the men's clothing industry perhaps the most sensational event of the year has been the prolonged strike in the Chicago and New York factories of the International Tailoring Company, which resulted from the refusal of the company to negotiate a new contract with the Amalgamated Clothing Workers and which eventuated in a victory for the union.

In the newspaper printing industry, the unions have maintained their strong position. Only three or four of the important newspapers in the country maintain non-union shops, and the recent attempt to augment this number has failed. The unions have not fared so well in the job printing industry. The 1921 strike for the 44-hour week lost them agreements in a large number of the cities; while the International Typographical Union paid out seven million dollars in strike benefits. The pressmen, whose funds were much more meagre, fared even worse than the printers. New York and Chicago are the main centers where union agreements prevail, and the non-union group in the latter city has increased relatively during the last few years.

Collective bargaining on the railways is largely confined to the train service workers and to clerical employees. The various shop craft unions suffered such losses in the 1922 strike that, excepting on a few roads, they have not been a strong factor since.

The train service crafts are now dealing directly with the roads rather than resorting to the Railway Labor Board for the settlement of disputes. The clerks, on the other hand, who naturally are not as strong as the train-service Brotherhoods, are utilizing the services of the Board in the adjustment of grievances.

LABOR LEGISLATION

By Irene Osgood Andrews

Assistant Secretary, American Association for Labor Legislation

Workmen's Compensation. — In 1925 the Federal Congress and legislatures of forty-two states, Alaska, the Philippines, Hawaii and Porto Rico held regular sessions. Three of these states also held special sessions. Notable advance was made in the field of workmen's compensation. The legislature of Missouri enacted an elective law of fairly liberal provisions to be administered by a commission of three members. This act was approved both by business interests and the American Federation of Labor. But the opposition, led by the legal profession and a small section of organized labor, succeeded in suspending the law by referendum petition and it will be submitted to vote of the people at the 1926 November election. Arizona repealed its existing compensation law and enacted a much better one, providing for a competitive state fund and an industrial commission of three members to administer all state labor laws. This act and a constitutional amendment providing for its legality were submitted to referendum vote at special election in September and they were ratified, thus placing Arizona in the list of states having a good modern compensation law.

Twenty-three other states, Alaska and Porto Rico amended their workmen's compensation laws. New Jersey reduced the waiting period from ten to seven days while Porto Rico established a waiting period of seven days. The new Missouri law provides a waiting period of three days, retroactive after three weeks, that of Arizona one of seven days, retroactive after two weeks. Porto Rico now covers all farm workers instead of certain specified types; employers' election in Wisconsin may now include farm workers and domestics while Montana specifically lists excluded agricultural occupations and provides for their voluntary covering. A dozen states extend coverage to certain classes of employees. Alaska and Arizona, by providing for medical care, make this provision common to all our state compensation laws. Illinois removed time and cost limits, while Montana, Nevada, Ohio, West Virginia, Wisconsin and Wyoming liberalized provisions for medical care.

Benefits to Minors.—Compensation to illegally employed minors in Wisconsin, formerly treble in all cases, is made treble for prohibited employments and double for failure to obtain permit. Oregon provided benefits for illegitimate children. Death benefits varying with the number of dependent children were provided in Arizona and increased in Illinois, Minnesota, Nevada and Wisconsin. In Illinois disability benefits depending upon the number of children were also increased. Montana now compensates aliens and minors whether or not legally employed, the age limit of dependent minors was raised from sixteen to eighteen years and death benefits to parents increased from 40 per cent. to 50 per cent. of wages. North Dakota provided that compensation for minors and learners be revised from time to time. Maximum weekly benefits were raised in Connecticut, Illinois, Maine, Montana and Porto Rico, and minimum weekly benefits in West Virginia and Montana. Porto Rico changed occupational disease coverage from the general to the specified list type, while Ohio and North Dakota liberalized occupational disease provisions. The federal law extended compensation benefits to enlisted men injured in times of peace, excluding for this purpose cases due to sickness or disease, while New Jersey extended naval militia workmen's compensation benefits to members of the national guard, including cases of death or disability caused by any disease due to service without regard to the occupational disease list in the workmen's compensation act.

Vocational Rehabilitation. — The provisions of the federal vocational rehabilitation act were accepted by Colorado, New Hampshire and Oklahoma, making thirty-nine states and Hawaii now coöperating. Congress made annual appropriation of $914,000 for carrying out the provisions of the act. New York extended its vocational rehabilitation act to cover all children under fourteen years of age who by reason of physical defect other than blindness or deafness may be expected to be wholly or partially incapacitated for education or remunerative occupation. The State Commissioner of Charities is made a member of the ex-officio advisory commission for oversight of rehabilitation work. Montana provided a monthly maintenance allowance, in addition to benefits formerly received, for certain persons under the direction of the state rehabilitation bureau. New York provided additional compensation for general rehabilitation purposes to be paid out of the maintenance fund but still limited the allowance for maintenance to $10 per week.

Child Labor Laws.—The child labor amendment to the federal constitution was ratified by Arizona, California and Wisconsin. Georgia and New Mexico materially strengthened their child labor laws by forbidding children under sixteen to work in an enumerated list of occupations including operation of dangerous machinery, processes using poisonous substances and any occupation dangerous to life or injurious to health or morals, by making more specific the conditions for issuing work certificates, and by other provisions. Wisconsin authorized its industrial commission to investigate conditions of employment of children under sixteen and to fix by general or special order reasonable regulations for protection of such children in certain industries including gardening for market or canning companies, culture of sugar beets, cranberries, and cherry orchards. Laws affecting child labor of nine other states and the District of Columbia were improved in minor particulars. In Delaware and Rhode Island commissions are authorized to investigate laws relating to children.

Coal Mine Safety Laws. — These were strengthened in eight states. Pennsylvania, West Virginia and Wyoming, among other improvements, now permit rock dusting to be used instead of sprinkling for prevention of coal dust explosions. Oregon abolished her bureau of mines and transferred its functions to a board of supervisors serving without pay and representing the school of mines and mining interests of the state. New Jersey repealed its law controlling manufacture, storage and transportation of explosives and enacted one with stronger safety regulations. Congress finally authorized the printing of the report of the U. S. Coal Commission.

Safety regulations for compressed

air workers in New York were strengthened and in a dozen states minor improvements were made in sanitation or safety laws affecting workers in factories, restaurants, construction and transportation.

Old Age Pension.—Wisconsin became the fourth state to enact a noncontributory old age pension law. This law is elective by two-thirds vote of county boards, and is to be administered by county judges subject to approval of the state board of control. Recipients of pension must be seventy years of age, citizens of the United States and residents of the county for fifteen years immediately preceding application. Amount of pension, added to other income of recipient, is not to exceed one dollar a day. Nevada repealed its old age pension law and enacted another to be administered by counties. Alaska increased its biennial appropriation for old age pensions from $60,000 in 1923 to $110,000. The Pennsylvania legislature manifested its continued interest in the movement by the enactment of three measures. The first authorized the completion and printing of the report of the former commission, the second authorized the governor to appoint a new investigating commission and the third was a resolution, passed by both houses, to amend the constitution so as to permit the legislature to appropriate money for assistance of indigent poor. Eight states and the United States Congress passed amendments expanding improvements for retirement of public employees. Porto Rico repealed her law of 1923 and enacted one with less liberal provisions.

Mothers' Pensions.—The Sheppard-Towner federal maternity act was accepted by Rhode Island and Vermont, making forty-three states and Hawaii now coöperating. Wisconsin amended her mothers' pension law to provide aid to needy mothers for six months before and six months after birth of a child. Iowa and South Dakota improved their laws regulating maternity hospitals.

Minimum Wage Laws.—Court decisions rendering the minimum wage laws for women in Arkansas and Arizona invalid followed the precedent of the United States Supreme Court in the District of Columbia decision (1923). The Wisconsin minimum wage law, declared unconstitutional, in 1924, as applied to adults, was amended to require employers to pay reasonable and adequate compensation for services, instead of a living wage. The amount of such compensation is to be determined by the Industrial Commission which is also authorized to grant an employer a license to employ women at lower wage if he can prove that he is unable to pay that fixed by the commission, but his business inefficiency is not to be ground for granting such license. Wages of postal employees were increased by act of Congress.

Connecticut strengthened her women's hour law and provided that no woman or minor should be employed more than six days a week in public restaurants and certain other industries.

Agency Regulation.—Regulation of private employment agencies was established in North Carolina and strengthened in Michigan, Minnesota, Oregon, Wisconsin and Iowa. In Wisconsin the license fee is to be a certain percentage of placement fees and other charges received by the agency during the year. Appropriations for public employment bureaus were increased in Arkansas and New Hampshire. The industrial commission authorized by the new Arizona workmen's compensation law is empowered to maintain free employment agencies.

Miscellaneous.—The criminal syndicalism law of Idaho was amended by inserting a very drastic definition of sabotage. Illinois enacted a law, since upheld by court decision, forbidding injunctions against peaceful activity in relation to labor disputes, while New Jersey provided for jury trial of person disobeying injunctions in labor disputes. The Kansas industrial court was rendered practically powerless by decision of the U. S. Supreme Court in April, 1925. The Kansas legislature later repealed the law creating the court and conferred its functions upon the public utilities commission.

XXVI. LABOR AND LABOR LEGISLATION

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DIVISION XXVII

RELIGION AND RELIGIOUS ORGANIZATION

THE WORLD WAR AND THE CHURCHES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

Immediate Effect.—This has been world-wide on bodies Christian, Jewish, or Moslem, whether its work, its ideas and policies, the breadth of its activities, or the development of its resources in men and means is considered. It may be doubted whether it has left any of the religious unchanged. President Wilson's idea that the outcome should make democracy greater and safer in the world has evidently obtained in large degree, as the tumbling of thrones and the spread of Republican government bear witness. In the Christian Church its agency in relaxing the hold of doctrine appears not to be notable; other causes have entered into the modifications of its belief and particularly in its attitude with greater force, such as the rise of the newer school of scholarship, with its rationalistic interpretations of the Bible, which has from the beginning shaped the thinking and believing of Christian and Jew.

Service in the War.—The Churches of the United States stood in their accustomed place in the support of the nation's participation in the war, sending out chaplains, ministers, representatives of the Y. M. C. A., the Y. W. C. A., the Salvation Army, the Knights of Columbus, and other organizations to minister to the material, physical, social and intellectual needs of the soldier, as well as to his spiritual requirements; leaving many of the churches at home either pastorless, and without adequate plans of service or attention to church building and improvement, and its usual program of work. The loss in results was clearly indicated by the diminution of ingatherings of new members from the young and from the mature group, so that in 1919 the net additions fell to the lowest point in the history of a century, perhaps. Moreover, the immense contributions levied by the government for loans of unprecedented extent, impoverished the Church, which could not keep up its own financial demands in the urgency of the "drives" necessary to save the life of government and nation.

Post-War Period.—After the war, the people wanted a breathing spell and recuperation was naturally slow. Absorption in the material affairs of the men at the front, while it strengthened the widening activities of the Churches in the social service they had inaugurated before the war, brought under larger consideration certain cognate ministries along lines of broadening educational, recreational, and other human needs, including the building and endowment of hospitals, refuges, homes and orphanages, in which the Roman Catholic, the Lutheran, the Jewish and other denominations had long been preëminent among the denominations. At all events it must be said that the outcome of the war helped in securing the settlement of the question of social service and institutional churches for a line of work which few churches had previously entered upon, except hesitatingly and experimentally.

Denominational Peace. — Another

outcome of the war was the abatement of antagonisms and differences between the Churches. Humanity became the immediate concern of the church representatives in the theater of war, Catholic, Protestant and Jewish servants of the Most High not only touching shoulders in their benign service, but recognizing that they were upon the same holy errand, under commission of Him whom they all served and their denominational differences shrunk in the presence of suffering of wounded and dying. Some may speak sweepingly of the former fighting and bickering of militant Churches; but there never was as much of it in the narrowest times as many believed, and it has lost in these days its ruthlessness and its severity, and toward this desirable result the most bloody and cruel war in history has indirectly contributed.

Cessation of Sectarian Feeling.— Again, the pressure of the war caused the cessation of bitter sectarion feeling, but the recognition of the necessity for coöperation and unity. The peril was both national and international, the allied nations fighting together for life and liberty. With the same aims, fronting the same task and the same peril, the denominations must coöperate and engage unitedly in the work of defense. This conviction, while it had existed before the war, was stimulated and strengthened by the common service it inspired.

World Peace. — Another purpose which the war has drawn the Churches to advocate unitedly is that peace and the arts of peace must not be displaced by war, which is brutal, fatal and foolish; moreover, war is unnecessary, while reason is enthroned to find humane, effective, sane methods for the settlement of international disputes. Most of the denominations are agreed that armies and navies and airfleets are required chiefly for the policing of the nations, to control outlaws and criminals, and anarchists and to insure the enforcement of the laws for safeguarding civilization. If this steadfast conviction has drawn the denominations closer to political lines than some have hitherto been willing to go, it is another instance of how a great evil tends to unite religious forces in righteous demands upon a nation's rulers.

Moral Forces. — The unreserved recognition by President Coolidge of the important part which religion plays in its promotion of high moral standards, giving a force to law and effective government which no other power can impart, is evidently accepted by the Churches in general as a call to develop to the utmost their support of law enforcement and loyal obedience of its citizens in government operations. While the war did not bring religious coöperation and unity into being, it has greatly influenced and strengthened them.

INTERDENOMINATIONAL ACTIVITIES

The Federal Council of the Churches of Christ in America.— This body, representing some thirty of the evangelical bodies, indicates the breadth of its coöperative work by its Commissions on Social Service, Research and Education, Evangelism and Life Service, Race Relations, International Justice and Good Will, Relations with the Churches of Europe, Relations with the Western Churches, and coöperation in securing Army and Naval Chaplains. Its General Council meets once in four years, an Executive Committee, annually, and an Administrative Committee, monthly. Its declared purpose is to represent the "oneness of the Churches" in Christ and "to promote the spirit of fellowship, service and coöperation."

The Federal Council issued in the latter part of 1925 a carefully prepared review of the progress of enforcement of the laws under the Eighteenth Amendment to the Constitution of the United States. It was intended to be of a judicial character and it freely admitted that in many respects enforcement had been unsatisfactory and the churches needed to renew their former zeal in the work of educating the people as to the injurious effects of intoxicants. Its admissions as to the general disregard of the enforcement laws and warning that a serious struggle must take place before success could be secured, was a surprise to many and opinion was divided as to the wisdom of its publication. Most of the churches have organizations of their own to promote temperance and prohibition, and they also support the Anti-Saloon League in its active campaigns in the various states against any weakening of the Volstead Act, or any State legislation designed to break down prohibition.

The matter came up before the Executive Committee of the Federal Council at its meeting at Detroit, Mich., in December, 1925, and was fully discussed and freely criticized by the President of the Anti-Saloon League, among others, Bishop Nicholson, of Chicago, who said its admissions "put us back several years." The Business Committee, to which the matter was referred, reported that it was not expedient for the Council to enter the field of temperance and prohibition at this time.

Lay Organizations.—The Y. M. C. A. and its close second, the Y. W. C. A., with the Knights of Columbus, and other organizations, have greatly increased and broadened their activities since the War and carried them into all parts of the earth, even into Moslem countries. Millions of dollars have gone into their buildings, and their budgets are larger than ever before. Coöperative effort on religious lines has never before approached such large dimensions as now. The Jews, always at the top in beneficence, are raising $5,000,000 largely for the rehabilitation of Palestine, brought under their care by the outcome of the war.

The Y. M. C. A. Triennial Convention.—This organization held its session in Washington, D. C., in November, 1925. The most important item of business was the report of the committee on basis of membership appointed by the Convention of 1922. The report recommended the adoption of a new formulation as follows: "I hereby declare my faith in God, and my acceptance of Jesus Christ as Savior and Lord. I desire to serve him and to be his disciple in accordance with the teachings of the New Testament, and to unite with others in the extension of the Kingdom of God; and I am in full accord with the following purpose of the Young Men's Christian Associations of the United States and of Canada, and commit myself to its voluntary service and support: 'To lead young men to faith in God through Jesus Christ; to promote their growth into fullness of Christian character; to lead them into active membership in the church of their choice; and to make the extension of the Kingdom of God throughout the world the governing purpose of their lives.'" It was contended that this modification of the basis, which had been in effect since 1869, will secure more service from members than that of the past which required church membership. The new rule, it was said, for it was adopted, will raise the standard instead of lowering it. The Convention was attended by twelve hundred laymen and was addressed by President Coolidge, who said it was the greatest lay force in existence and was accomplishing a great work for young men.

Interest in Other Countries.—It is no longer possible to confine the interest of the Churches of the United States to their own country. Through the progress of foreign missionary endeavor in all lands, among all populations, Christian and non-Christian, Moslem and Pagan, the influence of the various cults on national and international affairs has immensely increased. This is illustrated by the position taken by such bodies as the Congregational National Council, the Episcopal General Convention, and the missionary societies of the Methodist, Presbyterian, and other Churches in notifying China in its struggle to obtain full national autonomy, that they will not ask for the continuance of extraterritorial privileges for their representatives, or any of the other special favors which suggest distrust of China's ability or willingness to guard the rights of aliens. Moreover, most denominations have come to admit that Chinese, Japanese, Hindu, and other converts who do not understand why there should be so many different denominations, all acknowledging allegiance to the same Lord, and so many variant polities, agree in asking that they shall have freedom in shaping their own organizations, and the autonomy of the nascent Native Churches in Asiatic, European, and South American countries has been forced upon the attention of the missionary organizations in the homeland and won their approval very generally. These, and other questions, have brought about changes not only in methods of conducting missions in foreign fields, but also in attitude toward the non-Christian masses and their religions, amounting almost to a revolution.

Protestant Foreign Mission Results.—A very considerable part of the activities of various American Churches and a rapidly growing contingent of missionaries, churches, and church members or communicants, are found in countries of other continents, not only among the great dense masses of populations of Asia, known as pagan, but also in Africa and in the islands of the sea, where the least developed form of religion, known as animism, also appears. Missions have long existed also in Latin America and in countries of Europe as well, whose indigenous faiths have long been Christian of various types. A *Missionary Atlas* appeared about a year ago, under the auspices of the Institute of Religious and Social Research of New York, with the coöperation and approval of the Foreign Missions Conference of North America and other organizations. It was edited by Prof. Harlan P. Beach, of New Haven, and Mr. Charles H. Fahs, of New York, and is the most thorough survey ever undertaken. It includes the work of the foreign missionary societies of other countries as well as those of the United States. There are 700 of these Protestant organizations (including those of women) of which nearly 400 send out missionaries, the rest being coöperative, raising funds, etc. The total annual income of the 700 societies reached in 1923, $69,555,148, of which about forty-five and a quarter million dollars was raised in the United States, $13,343,000 in Great Britain, $3,358,000 in Canada, $3,631,000 in the Continent of Europe, with Germany only represented in small part owing to the effects of the war. The grand total of over sixty-nine and a half millions indicates an increase of about forty-nine millions since 1900, and of sixty-five millions since 1859, sixty-six years ago.

The number of missionaries employed is 29,188 (including ordained men, physicians, teachers, etc.) of whom 17,744 are wives and single women. Besides this foreign force are 88,635 on the native staff. More than fifty per cent. of the missionaries are in Asia, over 55 per cent. the next larger number in Africa, 6,300, in Latin America 3,049, and in Australia, the Pacific Islands and elsewhere 1,810.

The Protestant constituency of communicants, baptized and under training, has increased from 3,613,391 in 1900 to 8,342,378, a gain of over 57 per cent., an average of 2.3 per cent. a year, which is beyond the annual Protestant increase of the Home Churches in the United States. It is an interesting fact that some of the large Protestant denominations in the United States have occasionally a larger net increase on the foreign fields than at home, with a working force many, many fold greater. This survey only covers Protestant missions, not Roman Catholic.

FINANCES OF 24 DENOMINATIONS

An interesting table has been prepared intended to indicate how large the financial budgets of twenty-four Protestant bodies in the United States were in 1924: for benevolences, for congregational expenses, and for all purposes, included in the two former budgets. The total for benevolences is $90,169,172; for congregational expenses $307,355,903: Grand total $453,277,266. The list embraces three Presbyterian Churches in the United States and Canada, three Methodist, three Lutheran, three Baptist, Congregational, Protestant Episcopal, Disciples of Christ, United Brethren and two Reformed bodies. All the larger churches are included. The returns for the Methodist Episcopal, the largest single body, are $96,514,193, including nearly $19,000,000 for benevolences and $74,307,000 for congregational expenses; the next in amount is the Presbyterian (Northern) nearly $57,000,000, of which $10,500,000 was for benevolences and over $40,000,000 for congregational expenses; the third, the Methodist Episcopal, South, $38,765,000, of which $3,389,207 for benevolences and the balance for other expenses; the Southern Baptists fourth, $34,533,132, of which $9,487,314 was for benevolences and $25,046,000 for congregational expenses; the fifth, the Protestant Episcopal, $37,459,000, of which $5,462,268 was for benevolences and $30,561,218 for congregational expenses; the sixth, the Northern Baptist, $32,689,000, of which $7,890,000 was for benevolences and $23,853,262 for congregational expenses.

The largest per capita giving for all purposes was by the United Presbyterian Church, $36.92; following in order, the Protestant Episcopal, $32.38; the Northern Presbyterian, $31.88; the (Southern) Presbyterian, $31.82; the Reformed Church in America, $31.55. The average of the Methodist Episcopal Church, with 3,895,434 members, was $24.78; of the Southern Baptist, with 3,494,189, was $9.88. The average for the 24 denominations with 21,909,675 members was $20.68. The foregoing figures were taken from a report prepared and issued by Harry S. Myers, Secretary of the United Stewardship Council, New York.

WORLD CHRISTIAN CONFERENCE ON LIFE AND WORK

This Conference was held in Stockholm, Sweden, in August, 1925, with Protestant Orthodox Eastern representatives present from forty-four countries, over 500 delegates from a hundred or more denominations, not including the Roman Catholic. Its purpose was to confer on such problems confronting the Christian Church as those of economy and industry, society and morals, international and interracial relations, a substitute for war, Christian education, coöperation and federation. There were from 1,200 to 1,500 persons present at the first session, including a strong representation from Germany, with President Hindenburg at its head, and patriarchs and prelates of the Eastern Orthodox, with their striking vestments and attentive retinues. The King and Queen of Sweden were in attendance and gave the Conference their royal support, the King pronouncing the welcome. The program was carried out under the appointed presidencies, the Bishop of Winchester, England, preaching the opening sermon.

The outcome of the Conference, not expressed in resolutions or official statements, seems to be first the fact that what is practically an Ecumenical conference, of Christians of all names and shades of belief, is possible, for it had been held, only the Roman Catholic Church being absent; that life and work are scarcely separable from faith and order; that the Church is not yet ready to advance beyond general principles in the discussion of economical and industrial questions; that Christians are ready for coöperation but not for unity. The message issued by the Conference has been summed up as follows: "The message is its own triumph. It is the charter of the world's salvation. It speaks of industry in terms of comradeship and coöperation. It construes property in terms of stewardship. It exalts personality above profits. It deprecates national bigotry and prays for a Christian internationalism."

South American Congress of Evangelical Churches.—The Evangelical Churches of the United States and Europe, which are conducting missionary operations among the Spanish and Portuguese population of South America, have been gradually drawing together in sympathetic coöperation, to make their work more effective; also as an economic measure and to avoid rivalry in the same territory. In accordance with this policy a Congress on Christian work in South America, not including that north of the Isthmus of Panama, was held in Montevideo, Uruguay, beginning March 20, 1925. Not only did the missionaries take part in it, but the representatives also of the native churches. The spirit of the Congress was not antagonistic to the Roman Catholic Church, which serves the majority of the people in each State and has the advantage in Colombia of being united with the State. There were about 300 delegates present, including 200 in South America and 100 from abroad, the latter consisting of officers of societies conducting missions in the southern continent. It was dominantly South American in its make-up, unlike its predecessors.

Commissions reported on various subjects and the findings had full discussions, in which the native members bore their fair part. The question of keeping Christian education definitely Christian evoked expressions not always in agreement as to method, but differing little as to the desirability of keeping the standard high. Evangelism was emphasized as of leading importance. The Indians received much attention and the difficulties encountered in this field of work were clearly set forth. The finding on this subject stressed the necessity of the Church agencies adding their efforts to those of the State in training the aborigines to become self-supporting and self-respecting citizens. There were four other findings devoted to the work among the Indians. The Evangelical Churches are said to be a part of the present indigenous life of the South American Republics and not foreign organizations standing outside of the life of the people. The Protestant Churches have 122,266 communicants, with over 2,000 ministers and other regular workers.

PROTESTANT ACTIVITIES AND CONTROVERSIES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

Modernist Controversy.—As this controversy affects a number of denominations, it will be more convenient to treat it apart from the year's history of the various bodies. It was not a movement which was started by the World War. On the contrary, the World War by interrupting communications between Germany and the United States, not only removed what had been an influential source of advanced biblical criticism, but made such literature as had come previously from German critics unacceptable. The influence of English views which have been for years quite in advance of American has been much more strongly felt on this side of the sea, not only in the United States but also in Canada. The Scottish school of criticism, of which Prof. William Robertson Smith, chief editor of the *Encyclopedia Britannica*, was a leader, spread quickly from the literary centre in Edinburgh through the Scottish Presbyterian and other churches, formerly quite conservative, and theological books of a liberal cast have been making their way for years to the United States. During most of the present century English and Scottish books have been affecting theological teaching in most of the seminaries, especially of liberal institutions, such as the Union (Presbyterian), and General Theological (Episcopal) seminaries in New York; Yale, in New Haven; Auburn (Presbyterian) in Auburn, New York; Methodist, Baptist and other schools; and books by a number of professors and ministers have been regarded by conservatives in the various denominations as constituting a sort of propaganda of liberal views on doctrines esteemed as fundamental.

The Issue.—The central question, perhaps, of the controversy, which seemed suddenly to break out a few years ago, and which came to the public knowledge chiefly by the daily press treating it somewhat sensationally, was as to the supernatural element in religion. Do or do not the discoveries of science forbid the holding that miracles such as the Bible recounts, could have actually taken place, including the virgin birth and the bodily resurrection of Christ? One of the most outspoken of the Modernists, who now prefer to be called Liberals, declared that he believed neither in "mysteries, miracles nor metaphysics," but did accept the conclusions of science as to facts. Underneath these questions as to doctrines set forth in the Apostles' and Nicene Creeds, in particular, was the matter of the view to be taken of the Scriptures. Were, for example, the statements of occurrences in the life and ministry of Christ to be accepted as facts, or were they to be treated as other history? The question of interpretation thus came into the controversy, with implications questioning the preëxistence and deity of Christ. The term Fundamentalist was probably first used by ministers and members of the Northern Baptist Convention, who at one of their annual conventions had a separate gathering where they set forth the points upon which they were agreed as a positive statement of belief. One of their leaders afterward entered into a series of debates with a Unitarian minister, in New York. The controversy spread to other denominations and several Episcopal rectors declared themselves as Liberals.

The occupant of a Presbyterian pulpit in New York, a Baptist serving as a supply, discussed the questions involved in a moderate, winsome way and gained many adherents. This raised the question as to whether the Presbyterian Church could tolerate statements opposed to its doctrinal standards, and the New York Presbytery was required by the General Assembly to deal with it and also received directions from the General Assembly to exercise care in admitting men to ordination. The outcome was action by the General Assembly of 1924, which led Dr. Fosdick to vacate the pulpit of the Third Presbyterian Church in New York. At the same time the General Assembly, under the moderatorship of Dr. MacCartney, and the leadership of Hon. William J. Bryan, took action which placed the new views under ban, against the protest of a large minority that it was unconstitutional and infringed the rights and liberties of its ministers. In 1925, the General Assembly in several cases declared that presbyteries could not lawfully license preachers who cannot aver their belief in the virgin birth, and it also ordered the appointment of a committee of fifteen to inquire as to the causes of spiritual unrest in the Church and to make report to the next Assembly, to the end that purity, peace, progress and unity may be assured.

In most other churches these matters have not become open issues, either because of the spirit of toleration, or because they have not become a question of challenge. The trial at Dayton, Tenn., of a public-school teacher accused of teaching a doctrine opposed to the Scriptures—evolution—brought the theories of science under wide discussion, in which the wisdom of the attitude of the State was very generally questioned.

INTERDENOMINATIONAL UNIONS

Unification Among the Churches.—The tendency toward reunion among several groups of Churches bearing the same denominational names, as Baptist, Methodist, Presbyterian, Lutheran, etc., is one of the notable signs of progress in the present century. The Federal Council of the Churches of Christ in America shows the strong sentiment for coöperation existing in the United States and England, where a similar body of free churches exists. But actual reunion in various groups has taken place in recent years.

United Church of Canada.—The consolidation of three distinct bodies in Canada took place in Toronto in June, 1925, viz., the Presbyterian, Methodist and Congregational Churches. Previously, various bodies of Presbyterians and of Methodists had created one Methodist and one Presbyterian Church. Union of the three bodies was long pending, delayed by an attempt among the Presbyterians to reduce an opposing minority to the smallest number and by the World War. Finally the plan of union was submitted to the votes of the general bodies, of the presbyteries, conferences and associations, and of the local churches. The returns were deemed to justify consolidation and consolidation was accomplished enthusiastically in General Council representing the three bodies, which elected officers to serve during the interim. The lapse of six months shows that all the local churches of the Congregational and Methodist bodies are in the union; but of the Presbyterian local churches, 700 remain outside and continue in a separate organization.

The name of the new body is the United Church of Canada, the first in the history of Christianity to be formed from such different denominational elements. It unites a basis of doctrine of twenty articles of a modern cast, and its polity is presbyterial, embracing a General Council, presbyteries and conferences, the latter occupying the place of synods and embracing presbyteries. Missions, home and foreign, and other societies engaged in church work are to be consolidated into one organization for each kind of work, in place of the three denominational organizations.

The first President of the Church is a Presbyterian, Rev. Dr. George C. Pidgeon, and the first secretary, a Methodist, Rev. Dr. A. T. Moore.

The question has arisen as to the interdenominational relations of the new body. The Methodist Church was a member of the Ecumenical Methodist Conference, a decennial body, including Methodist bodies throughout the world, and as such, had a place also on the Ecumenical Methodist Commission for America, Canada and Japan. The United Church has been recognized by the Eastern Commission, with headquarters in England, which action will doubtless be followed by the Western Section when the Commission meets. The United Church has also been accepted as a Presbyterian Church by the Council of the World Union of the Presbyterian and Reformed Churches. The Congregational element does not lose its identity with other Congregational bodies. Therefore, it seems to be settled that the merging of the three denominations in one does not affect its former triple alliances.

Consolidation of Lutheran Bodies.—In 1918 the most notable union ever planned and carried out took place in the Lutheran group, viz., the General Synod, the oldest organization, the General Council and the United Synod South, three large general bodies, with subordinate synods.

The organizing conference was held in New York, in 1918, and did its work in the utmost harmony, adopting the name, the United Lutheran Church in America, upon the basis of the old Lutheran standards of doctrine—the Augsburg Confession, the Formular Concord, etc. In the years following, union of contiguous local churches, of synods, and of missionary and benevolent societies has been proceeding, and the United Church has prosecuted its work at home and abroad with increasing force and efficiency. One of the largest Lutheran bodies, with headquarters in New York, it has exerted a large influence at home and abroad. It has become the center of a Lutheran National Council, organized during the World War to prosecute American Lutheran interests at home and abroad. It was preceded by the union of three Norwegian Lutheran bodies as the United Norwegian Lutheran Church of America, reducing the number of Lutheran bodies by four.

Union of Two Sister Bodies in Evangelical Church. — Two bodies known as the Evangelical Association and the United Evangelical Church, which had divided in the last quarter of the nineteenth century, came together a few years ago as the Evangelical Church, a Methodist Body, organized early in the nineteenth century by a ministerial friend of Bishop Asbury named Albright.

Foreign Mission Unions.—Unification of the Congregational, Presbyterian and United Brethren Churches, created in the Philippine Islands by their respective Missionary Boards in the United States, has taken place. There are now such unions in Japan, embracing Methodist bodies in one, and Congregational and Presbyterian in another; United Church in South China; United Church of South India; United Church of North India, making with the Philippine Union, six in the great mission fields.

Proposed Unification of Methodists. — Plans of union have been proposed, amended and rejected by the two leading Methodist bodies, viz.: the Methodist Episcopal Church and the Methodist Episcopal Church, South; during the present century. They were considered as unwieldy or unworkable, or as creating divisions into zones, with undesirable additions of conference machinery, and so were laid on the shelf. Finally, a very simple plan was proposed, which to some seemed only a sort of federation, but to a majority was a workable proposition, which would gradually accomplish consolidation. It was submitted to the Northern General Conference at Springfield, Mass., in May, 1924, and adopted by an overwhelming vote. It was sent down to the annual conferences for constitutional affirmation, and was adopted (1925) by far more than the necessary two-thirds vote of ministers and laymen. It was submitted in July, 1925, to a special session of the General Conference of the Methodist Episcopal Church, South, and adopted by a two-thirds vote. It was sent down to the annual conferences, in the constitutional process, and received, 1925, a majority, but not the required three-fourths vote. It therefore fails.

The two bodies would have made a united church of about 7,500,000 members, and healed a long-standing division created in 1844 by differences on the slavery question. The failure in the Church, South, may be attributed to several causes, first, fear of strong conservatism that modernism has too firm a hold in the Northern Church; second, lack of personal knowledge of northern men by the leaders and ministers of the south, and third, influence of the caste question among the older generation of the South. Two Negro bishops and a large contingent of Negro ministers and members in the Northern Church made the old objection to intermingling of the races a real obstacle to the closer relation.

Proposal to Unite Orthodox and Evangelical Christian Bodies.—This was launched by the Episcopal General Convention of 1910. (See American Year Book, 1919, pp. 746-7.) Acceptances from Anglican, Eastern Orthodox and many Protestant bodies were received and subjects for discussion between denominational groups, relating to the ministry, doctrine, sacraments and the like were issued.

Among others such discussions were held between representatives of the Established Church of England and the Union of Free Churches there. These, it is stated, have been abandoned (1925) at the intimation of the Anglican bishops that there is little hope of agreement on the Historic Episcopacy, one of the points of the famous quadrilateral statement issued by the Lambeth Council some years ago. This failure was not in relations introduced by the Protestant Episcopal Plan of 1910. Announcements of the meeting of the proposed world council in Washington, D. C., at different dates have been withdrawn; but the Continuation Committee having the matter in hand, announced in August, 1925, the holding of the Conference in the year 1927, leaving exact date and place to be named in the future. The subjects for discussion, meantime, in interdenominational groups are: The Call to Unity, the Nature of the Church, the Common Confession, the Ministry, the Sacraments, the Unity of Christendom, Continuation of the work of the Conference. As the Conference might not be in session long enough to complete consideration of all these subjects, the Committee suggests that topics five and six might be dropped.

ACTIONS OF DENOMINATIONAL BODIES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

BAPTIST BODIES

Northern Baptist Convention.—Its session in 1925 was held in Seattle, Washington, beginning in June. President Carl E. Milliken in his address proposed a referendum of all vital questions to the local, as a new idea in Baptist procedure. Then followed in long succession the reports of missionary and other societies, including those of women. For the Foreign Missionary Board it was stated that unless the churches keep their promises more faithfully than in the past year or two, much work must of necessity be abandoned. The reason for this statement was shown in the report of the Finance Committee, indicating that the total receipts for the year had reached $5,000,000, whereas $6,700,000 had been expected.

The question was raised as to whether four delegates from Park Avenue Baptist Church, New York, including the pastor, Dr. Woelfkin, should be received, as it appeared that the Church had voted not to require immersion as the only form of valid baptism in the reception of members under the coming pastorate of Dr. Fosdick. Sharp discussion took place, but the report of the Committee on Credentials to the effect that the election of the delegates appeared to have been regular was adopted by a large majority.

For some years reports had been current that missionaries had been sent to the foreign fields who were not sound in the fundamentals of the faith. A committee to investigate and report had been appointed by the Convention of 1924. This report stated that it found no evidence that missionaries of liberal type had been appointed by the secretaries, or that others had been refused because they were conservative. On the contrary, some had been rejected because they were liberal and none because they were conservative.

The Convention, after full discussion, adopted resolutions expressing pleasure at the assurance that the missionaries are working in harmony with Baptist faith and Baptist principles, and urging due care upon the Board in conserving the interests of the truth. Edwin H. Rhoades, Jr., of Ohio, was elected President for the ensuing year.

The Baptist Bible Union.—This organization for missionary work on a definite doctrinal basis in harmony with the Fundamentalist movement came into existence at a meeting in Chicago, in November, 1925. The Union is not new. It was formed in 1850 for the purpose of securing and publishing a version of the Old and New Testament conforming to the original text in the matter of the translation of the Greek *baptizein* by the English word immersion. The preparation of this version has been proceeding under the auspices of the American Baptist Publication Society, to which the work was referred in 1882. The Bible Union was originally a secession from the American and Foreign Bible Society (Baptist) formed in 1836 as a protest against the American Bible Society's continued publication of versions with the old translation of *baptizein.* The two former bodies reunited in 1882. The Chicago session was attended chiefly by ministers and members of the Northern Baptist Convention.

After the consideration of a program relating chiefly to the Holy Spirit's work, the convention organized a missionary department for home and foreign operations within the lines of the Union's confession of faith, which is conservative. No missionaries are to be employed except those who are in harmony with the Union's creed. Churches coöperating in the missionary enterprise are not required to separate from their present affiliations, and missionaries may continue to hold their present denominational relations. But the missions are to be established without regard to those conducted by the Northern Convention or other Baptist bodies. The new movement is regarded as a protest against modernism.

National Baptist Conventions.—In the past half dozen years or more the Negro migration from the South to Northern cities, like St. Louis, Kansas City, Chicago, Philadelphia and New York, has brought about an apparent decrease of 150,000 or more in the membership of the two Conventions.

This apparent decrease is due to the fact that the masses who have left the South have not found sufficient Baptist Church accommodations in the cities to which they have removed, and so many attend other churches or none at all. The migration is assigned to various causes, including complaints that their franchise is denied them, that a system of employment has arisen which reduces their freedom, and that wages are much higher and conditions of life much more attractive in the North. Other Negro bodies likewise suffer loss from this migration.

CONGREGATIONAL CHURCHES

National Council.—This body held its biennial Council in Washington, D. C., in October, 1925. It has been represented by a national organization only since 1865, which has no ecclesiastical power over local churches or State bodies, but exercises administrative direction over its missionary and other denominational societies and expresses the mind of the membership on general questions. The President of the United States, who became a member of the First Church, Washington, some months previously, presided at its first meeting as honorary moderator and made a notable address. Mr. and Mrs. Coolidge entertained a number of the delegates at the White House, during the ten days covered by the Council. Delegates chosen by State organizations were present from many States, including ministers and laymen, with elect ladies, and many attendants.

Reorganization.—The more impo tant subjects considered by the Cou cil were brought before it by Commissions appointed previously wh presented fully considered report with recommendations for discussio and action. First in importance, pe haps, was that of the Committee twelve on "Unification and Organization." It recommended that the fo eign work covering the conduct missions in foreign lands, administration at home, appeals to the churche educational and promotive work should be under the American Boar the oldest body of the kind in Ame ica, with which the Women's Board should be unified, providing for Presidential Committee of thirty-si one-third of whom shall be women also departmental secretaries, a cab net composed of these, and certai other commissions.

In the home work various societie are to be unified in a Congregationa Home Board, with the ultimate hop that all shall become a corporat body, under that name. There ar eight such societies—two missionary a church building, a Sunday Schoo a publishing, two educational and ministerial relief organization. Provision is made for two women's societies in the consolidation, which i to be worked out gradually. A boar of 36 directors, one-third women, i to carry on the work of these various societies, serving each. Provisions for its guidance are given i detail. Suggestions are also offere for acceptance concerning the relations of representatives of State organizations with the General Council and recommendations as to consolidation deal with the three periodical publications of the denomination, *The Congregationalist*, *The American Missionary* and *The Missionary Herald.*

Commissions and Boards.—The Commissions on Social Relations and on Interracial Relations presented reports which took a forward look and laid down principles which they hoped might come more and more to be accepted as sound bases of coöperation. They hold that the ideals of Jesus must become the test of community as well as of individual life, applying to education, industry, agriculture, interracial and international relations. They oppose the cutting down of working hours below eight. One report called for the abolition of military armaments, except for internal police. In a resolution on conflicts between science, scholarship and religion, the Council declared that there is not and cannot be any conflict between religion and science and deplored any State or Federal attempt to interfere with teaching of any widely accepted scientific theories.

The resignation of Prof. Edward C. Moore, who for many years has served, first as chairman of the Prudential Committee and then as President of the American Board, organizations which are as old as the modern missionary movement, was received.

An old and troublesome controversy was brought to remembrance in 1925 by decision of a Massachusetts Court that Andover Theological Seminary could not, under its trust obligations, unite with the theological department of Harvard University.

Proposed Union with Universalists.—The Council received memorials from two of its State bodies dealing with a proposal of a union of Congregationalists and Universalists and voted to appoint a Commission to consider the subject, with a similar commission from the Universalist Convention, the Council on its own part welcoming into "its fellowship all churches which can find freedom and satisfaction on the general basis of the Kansas City declaration in 1913." This was a statement in non-theological terms of recognition of the fatherhood of God, the sonship and lordship of Christ, the Savior, and the revealing, renewing and comforting power of the Holy Spirit. It holds to the Gospel for all mankind, and promises to work and pray for "the transformation of the world into the Kingdom of God." The Universalist denomination was an outgrowth of sentiment created in the Congregational, and a few other bodies, in the controversies that rose a century or more ago against certain Calvinistic doctrines, especially that of the eternal punishment of the finally impenitent, and dates from the beginning of the nineteenth century. The Unitarians, also an offspring of Congregationalists, approached the Universalist General Convention held in Syracuse, in October, 1925, and invited that body to appoint a commission to meet a similar one from the Unitarian Conference to organize "a council of representative liberal Christians for the purpose of promoting sympathy and coöperation and furthering their common aims and uniting them for the advancement of the Kingdom of God." Some cherish the hope that these commissions may draw all liberals closer together.

Resolutions. — Among the resolutions adopted were these: on religion and science, reaffirming loyalty to the old but welcoming all new light, and recognizing the demand to preach a gospel consistent with modern scholarship; accepting opportunities to exhibit the spirit of Christ in interracial concerns; declaring sympathy with China's desire for absolute sovereignty, and disclaiming "special privileges for our missionaries," asserting that it is the duty of Christian people to find a peaceable way of settling international difficulties and avoiding war.

The Disciples of Christ.—Their annual convention at Oklahoma City, in October, 1925, passed in review their missionary and benevolent work for the year, and other denominational concerns, including educational institutions with which they are well provided.

EASTERN ORTHODOX BODIES

American Conference. — The Federal Council of the Churches of Christ in America has appointed a special committee, with Bishop Charles H. Brent, of the Protestant Episcopal Church, at its head, to plan a conference between representatives of the Eastern Orthodox Churches and American Churches, somewhere in Europe, to discuss social, educational, and international questions.

Russian Orthodox Church in America.—For many years this body, the largest of the Eastern Orthodox

Churches, has been represented in the United States, first in Alaska when it was Russian territory, and on the Pacific Coast and then in the Eastern States. In New York, where there is a large population of Russians, it has long possessed a cathedral and a resident Archbishop. Since the Bolshevist revolution in Russia there have arisen differences over the possession of the property and government centering in the cathedral. Three claimants have been contending in the State courts for possession. In November, 1925, the appellate division of the New York Supreme Court gave a decision in favor of Most Rev. John S. Kedrovsky as the lawful archbishop, ruling against Archbishop Platon, who had the recognition of Tikhon, head of the Church in Russia. The case was complicated by the action of a Convention in Detroit, Mich., in 1924, which the court holds was in effect a secession, whose appointment of one Rodesvensky as American Archbishop was null and void, and that legality belongs to Kedrovsky, whose appointment was made by the "Holy Synod" in Russia. Meantime Patriarch Tikhon, of Moscow, is dead, and the "Living Church," a new organization recognized by the Soviet, appears to be declining in power. It had promise of support from bishops of the Methodist Episcopal Church resident in Europe for a Theological Seminary, but the approval of the Methodist Board of Bishops, at first granted, was subsequently withdrawn.

All-Russian Evangelical Union.—Various American bodies of Baptists, Methodists, etc., have been carrying on, with resident Lutherans, who have large numbers of native members, protestant missionary work, and have organized an evangelical federation, of which I. S. Prokhanoff is President. It is known as the "All-Russian Evangelical Union," and, according to Mr. Prokhanoff (who has been in the United States recently) under "the toleration policy" of the Soviet, has complete religious liberty. But Bishop Boaz, of the Methodist Episcopal Church, South, reports the Sunday School work of that body among children below eighteen, suffers much interference by th Soviet, which claims control of th education of children. The Union ha nine churches in Leningrad, and fiv in Moscow. In some places they us the vacant buildings of the disestab lished Church. Peasants, industria workers and laborers in general ar flocking to the new organization.

Czechoslovakian Churches. — Thi new Republic, the outcome of th World War, has representation o its Protestant elements in the Unite States, a church of its people havin been organized in Newark, N. J. last fall. The revolution by whic the new nation and government wa created is reported by Presiden Masaryk to have brought up the ref ormation ideas, as represented by th Hussite or Reformed, and the Augs burg or Lutheran elements. Thes have greatly increased in the pas five years, while the Roman Catholi body, with its uniate, or Greek ap pendage, has apparently decreased The Orthodox or Eastern Church akin to the bodies having Patriarch in Constantinople, Greece and else where, has also been strengthened. I all the provinces complete religiou liberty prevails, though in some o them there was little or no tolera tion before the war.

LATTER DAY SAINTS

Utah Branch.—There are two o these bodies, otherwise known a Mormons adhering to the Book o Mormon, said to have been given orig inally as a divine revelation. Th older branch is distinguished as th Utah Branch. It removed from Illi nois to Utah. There the Church o Jesus Christ of Latter-Day Saints has its central organization, in Sal Lake City, its Tabernacle and Tem ple, and its chief officers. The popu lation of the State generally adheres to it and it has many belonging to i in adjoining States. Its annual con ference is held in the month of April in the Tabernacle, a large oval build ing of fine acoustic properties. The 95th conference in 1925 was attended by: the first (dual) presidency, He ber J. Grant and Anthony W. Ivins the Council of Twelve; the presiding patriarch, Hyrum G. Smith; members of the Council of Seventy, of the Presiding Bishopric and other officers; with presidents of the ninety-four stakes, or districts, into which the Church is divided, and many missionaries and others.

The financial report showed that the tithe system had yielded for the year very nearly four million dollars, besides $489,406 from other sources. Of the tithes, $1,352,663 went for stake and ward purposes (wards are subordinate parts of stakes); $727,-809 for church schools; $175,521 for care of the worthy poor; $442,000 for construction and maintenance of temples or churches; and $700,664 for missionary operations, etc. It appeared that during the year 19,955 children had been blessed and thus made members and 14,047 baptized. The converts of the year numbered 7,556.

Among the reports was one on marriages, births and deaths, from which it appears that 33 per thousand is the birth rate; 13 per thousand the marriage rate, and 7.3 per thousand the death rate. There are 160,634 persons in the Church who are married, and there were 256 persons divorced during the year. The missionary work in this country, Canada and Mexico, has nearly 1,100 missionaries, 64,189 members and church property valued at somewhat over a million dollars. There are in Europe (Continental) 561 missionaries and 32,205 members, in England 151 missionaries and 5,670 members. There are also missionaries of the Latter Day Saints in Australia and the Pacific Islands. The mission which existed in Japan has been discontinued.

Reorganized Latter-Day Saints.—This body has its headquarters in Lamoni, Iowa. It owns Joseph Smith as its organizer, but rejected from its beginning the Revelation under Brigham Young that authorized polygamy. It has a great number in its ministerial ranks in proportion to its members. It accepts the Bible, the Book of Mormon and the Book of Covenants, which contains the revelations to its own leaders.

LUTHERAN BODIES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

Unions.—The chief event among the American Lutheran bodies since the World War—union of three Norwegian bodies in the Norwegian Lutheran Church and of three large general bodies in one, the United Lutheran in America has brought all Lutheran bodies into closer relations. There are no confessional divisions among the eighteen separate bodies, most of which are not large, and all of which are working for common objects coöperatively through the National Lutheran Council.

Yet, though Lutherans have not been drawn into the Modernist controversy, the ministry and membership, according to President Boe, of St. Olaf College in Minnesota, are feeling to some extent the influence of liberalism and confessional faith is being undermined to a degree that should call for attention, especially in Europe where the Church is subject to strong nationalistic influences.

The United Lutheran Church.—In the seven years of its existence it has developed no divisive differences, but is by the process of merging synods occupying the same territory or parts of the same territory, taking a long step forward economically and intensifying its strength in fellowship and coöperation. During 1925 three Lutheran synods, occupying territory in New York and New England, made progress toward union, including the synod of New York, the synod of New York and New England and the ministerium of New York, the three representing over 133,000 members. The United Lutheran Church has taken forward steps in the last two years for the occupation of a large new field in China, the establishment of

Andhra College in India, the founding of a Woman's College in the United States, making mountain work a part of the Church's program, planning larger provisions for immigrants arriving at New York, beginning a work at home among the Spanish speaking, etc. The two largest independent synods, the Ohio, with 148,000 members, and the Iowa, with upward of 137,000, are voting on a proposition to merge. Most of the districts of each have voted favorably.

National Lutheran Council of America.—Representatives from the United States met various European representatives at The Hague, in 1925, at Amsterdam and elsewhere. At Amsterdam it was reported that $20,000 had been given in eight months of 1925 for the help of Lutherans in Russia, for impoverished families in Siberia, and for the theological seminary in Leningrad, and that $50,000 more was being raised. The Soviet Government has recognized the organization of the Lutherans of Russia, who are very numerous, especially in Finland. Three synods of Finns exist in the United States and Canada. It was decided that a second World Lutheran Conference should be held in 1929, on the 400th anniversary of Luther's smaller catechism, which has done so much for the religious education of Lutheran youth in religion. Provision will be made for the observance in 1930 of the 400th anniversary of the Augsburg Confession, the universal symbol of Lutheran doctrine.

Aiding Foreign Missionary Societies in Germany. — Part of the work of the American Lutheran Council has been to help care for the foreign missions conducted in India, Africa, and other countries by the Lutherans of Germany, which were necessarily suspended during the world war. The Leipzig Society was only able to resume its wor
India in 1925. Some of the missi
in Africa, for example, were al
ated by government action and tr
ferred to other societies. In 1
American Lutherans gave $25,00
help the Gossner autonomous L
eran Church in India, with an a
tional $3,000 in answer to a spe
appeal.

MENNONITES

400th Anniversary. — These
American representatives of a Eu
pean movement of 1525 under
leadership of Menno Simon, whe
the name. The four hundredth an
versary of its origin was obser
among the American bodies, wh
trace their early beginnings to im
grants of their faith who came fr
Holland as early as 1663, and f
Germany in 1683. The German gr
was the larger. They founded
mantown and one of them, Nich
Rittenhouse, erected the first pa
mill in America on ground that af
ward became Fairmount Park. T
were pioneers and founders of in
ential families whose names
prominent particularly in Penns
vania. The Mennonites, like
Quakers, were opposed to war and
favor of freedom of conscience. Th
held to the doctrine of non-resistan
Regarded as Baptists in faith a
principle, they permit pouring as w
as immersion. They are divi
into twelve or more separate org
izations, whose differences are not
a fundamental character, but a
somewhat bewildering to those w
are not of their faith. Such titles
Mennonite Church, General Conf
ence, Mennonite Reformed, Mennon
Brethren, Conservative Amish a
Old Order Amish figure in the li
The total of members is between 8
000 and 83,000, and changes but ve
little.

THE METHODIST BODIES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

METHODIST EPISCOPAL

Plans of Union.—The event of greatest interest in 1925 to both this Church and its sister Church, the Methodist Episcopal, South, was the voting of the annual conferences of each, at home and abroad, on the question of changing their constitutions so as to allow their merging to be made effective. The conference of the former body gave a total vote of both ministers and laymen which not only met the two-thirds required, but went far beyond. The opposition to the motion in question was very small. The vote of the annual conferences of the Southern body gave an actual majority of ministers and laymen for unification, which, however, came several hundred votes short of the requisite three-fourths required.

Centenary Appeal.—In 1919 a centenary movement was launched in the Methodist Episcopal Church for a memorial to take the form of a great advance in financial support of the two boards of missions, into which the original Society had been divided, and of the other benevolent organizations.

This campaign was conducted most vigorously and with large results, the first year yielding a total sum far beyond anything the Church had ever expected or dreamed of. The result was that the Boards of Foreign and Home Missions and other benevolent societies increased their respective enterprises to an unprecedented extent. The force of the movement, when its success was demonstrated, was gradually lessened by the "drives" started for increase of endowments of educational and other institutions, and the Church lagged year by year under the pressure of the unprecedented demands, creating discouragement where enthusiasm had prevailed, so that the returns of the fifth and last year had diminished to $11,865,000. At the end of the period, the strong staff which each episcopal area had created to push the centenary appeal, was reduced or abandoned and the World Service Commission came into control with central offices in Chicago. Under its management the annual income gradually decreased from $11,865,000 to $7,631,000 in 1925, not that the management was inadequate, but because the constant pressure had decreased enthusiasm, the drop in that year being beyond a million.

Interchurch World Movement.—In the midst of the five-year campaign a movement was formed by various denominational missionary and other societies, known as the Interchurch World Movement, the governing idea of which was that under united direction and concerted appeal, the incomes of all the societies could be raised together. The scale of operations was necessarily a large and costly one, and the expenses were so great and the results of the public appeal so much less than the expectation, that the movement was crushed with heavy debts. The larger societies had under-written the cost, that of the Methodist Episcopal being considerably beyond a million, which had to be met and carried as a debt, with nearly a million more, which the Columbus (Ohio) Centenary Exhibition had involved, over and above its receipts.

This total debt has reduced the work of the Board of Foreign Missions and of the other societies, and with falling incomes has created embarrassment. The Board of Home Missions lost about $200,000 in the Interchurch World Movement, and other societies lesser amounts.

Skyscraper Churches. — In the changes that go on in cities in the movement from "down-town" to "up-town" of the population, in many cases masses of people have been left in the down-town section without church accommodations. To meet the condition where business has created density, a new system has been devised by which "sky-scrapers" have been erected in centers where business accommodations occupy most of the building, leaving the upper portions to church occupation. One such building has been erected in Chicago, and another has been planned for New York, to be known as the Broadway Methodist Temple. It will be a development of the Chelsea Methodist Church, which, in its present location, is working in a roofed-over basement. It is to occupy the block on upper Broadway between 173rd and 174th Streets, and is to cost about $4,000,000. It provides for a church seating 2,200 with all necessary equipment, for an apartment hotel, for housekeeping apartments and for stores, the rental of which is to provide the necessary income for taxes, expenses, interest, etc., leaving $125,000 annual surplus to retire the bonds which have been secured to finance the erection.

A similar Baptist enterprise is to provide a new church for Dr. Fosdick, who has assumed the pastorate of the old Fifth Avenue Baptist Church.

METHODIST EPISCOPAL, SOUTH

A special meeting of the General Conference of this body was held in Nashville, Tenn., in July, 1925, to take action on the basis of union which had been adopted by a Joint Commission of the two bodies. After a sharp discussion the basis was approved by a two-thirds vote. A campaign was conducted in the Church thereafter, which showed a divided opinion. The voting in the annual conferences indicated that the foreign conferences were almost without exception for the union, and an affirmative sentiment preponderated in the conferences in the border states, including those in the west and on the Pacific, in Missouri and elsewhere, but the conferences in the old South voted quite heavily in the negative, so that the affirmative votes of the Church as a whole reached a majority, but fell many short of the necessary three-fourths. The actual voting was as follows: for union, 4,52
against, 4,108; majority for, 420.
three-fourths was necessary the v
ing fell short by 1,949 of the cons
tutional number. This body a
made a centenary appeal in celeb
tion of the centenary of the Missio
ary Society, which had served bo
Churches until the separation of 18
46. The results to the missiona
and benevolent societies of the Sou
ern Church were proportionate
large, enabling an advance to be ma
in all its work. Since the centena
the annual income has been decrea
ing proportionately to that of t
Northern Boards, and a large defi
was reported in 1925.

Colored Bodies.—There are vario
other Methodist bodies, includi
three large and several smaller bodi
of Negroes, who, affected in the Sou
by the migration North, are increa
ing their accommodation in Ne
York, Philadelphia, Chicago, a
other centers, by the erection of cost
and commodious buildings. T
larger bodies are the African Meth
dist Episcopal, the African Methodi
Episcopal Zion, dating from the b
ginning of the last century, and t
Colored Methodist Episcopal Churc
being the colored constituency of t
Southern Methodist Church, whic
after the Civil War, the latter orga
ized into a separate body. The
three bodies have agreed amo
themselves on a basis of unio
The outcome is not at present pro
ising.

Another large body of Negro Meth
dists exists in the form of separa
annual conferences in the Methodi
Episcopal Church, having two bisho
to supervise them. This body ha
a few years ago, about 360,000 mem
bers, but the Negro migration to th
North has decimated some of its co
ferences. The presence of these N
groes in the Methodist Episcopa
Church, where they have full righ
in the General Conference, and th
fact that their bishops, though electe
to serve Colored Conferences, hav
equal powers and dignities with whit
bishops, undoubtedly had a large in
fluence in defeating unification be
tween the Northern and Souther
Churches.

PRESBYTERIAN BODIES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

Presbyterian World Alliance.—The various Presbyterian Churches of the United States and Canada, of Great Britain and Ireland, Australasia and other countries, including also the Reformed Churches which were a part of the Reformation by Martin Luther, are members of an organization known as the Alliance of Reformed Churches throughout the World, Holding the Presbyterian System, the twelfth General Council of which was held in Cardiff, Wales, beginning June 23, 1925. This body meets once in four years. The Alliance consists of two sections, a Western, including the United States and Canada, and an Eastern, including the British Isles and other countries. The Council of the Western section was held in Richmond, Va., in February, 1925. It considered a report on Home Missions and restated existing rules on comity designed to prevent overlapping of work in the same territory, to group weak churches which cannot stand alone, and in communities of 5,000 people or less, where one church already exists, not to establish other churches. A committee to allocate fields and programs for coöperative work was named. Similar measures of comity and coöperation are being carried on and extended in foreign missions.

In the summer of 1925, Presbyterian and Congregational Churches in India surrendered their own distinctive names and organizations and formed the United Church of India. It is announced that the two general bodies in the United States and Canada, known respectively as the Western section of the Alliance and the General Council, are to be united under the control of the Alliance as soon as proper arrangements can be completed.

PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA (NORTHERN)

Controversies in New York.—In recent years this body has been disturbed by the Modernist controversy, both sides having representatives in the General Assembly and in certain presbyteries, of Fundamentalism and Modernism, or Liberalism, as it is now called. Acts of the New York Presbytery have been chiefly objected to in the General Assembly of 1925, 1924 and 1923. The decisions of this supreme judicatory in these years have been directed in the main to two matters, the ordination of young ministers, generally graduates of Union Theological Seminary, Liberal, formerly a Presbyterian institution under oversight of the Assembly, but now not officially related thereto. Some of these candidates either declared they did not accept the Virgin birth, or that they were not settled in mind on it. The other question was as to the continued relation of Dr. Harry Emerson Fosdick, a Baptist minister, serving as supply in the pulpit of the First Presbyterian Church, New York, whose preaching seemed definitely Modernist or Liberal on various doctrines of the Apostles' and Nicene Creeds, including that of the Virgin birth.

Fosdick Case.—The action of the General Assembly in 1924-1925 brought both of these issues to a conclusion, upon reports of the Permanent Judicial Commission, with the General Assembly sitting in its capacity of Judicial Court. The Presbytery communicated to Dr. Fosdick the requirement of the General Assembly of 1924 that he accept the Presbyterian standards, assume the theological vows in the terms of the Westminster Confession, as other pastors who serve regular Presbyterian Churches are required to do.

Dr. Fosdick made answer to this that it had long been his conviction that subscription to ancient confessions of faith is a practice "dangerous to the welfare of the Church and to the integrity of the individual conscience." The outcome was the severance of his relations with the First Church, March 1, 1925.

Licensing Candidates.—The decision of the General Assembly as to the licensing of candidates who declared they could not either affirm or deny belief in the Virgin birth was to the effect that the licensures should have been delayed or refused as, according to the Constitution of the Church, belief in this doctrine is the established law of the Church. Therefore, the position of the presbytery and also of the Synod of New York was disapproved.

Committee on Spiritual Condition.—The Moderator of the Assembly, Prof. Charles R. Erdman, was authorized to appoint a committee of fifteen "to study the present spiritual condition of our Church and the causes making for unrest" and to report to the Assembly of 1926, "to the end that the purity, peace, unity, and progress of the Church may be assured." The Committee held its first meeting in Atlantic City, N. J., in December, 1925, and heard representatives, behind closed doors, of the Fundamentalists and the Modernists, or the Liberals as they have preferred to be called.

Church Finances. — The General Council which is practically an executive committee of the General Assembly *ad interim*, at a meeting in December, 1925, adopted a plan of financial management for the Church in accordance with modern methods of business. It provides for a Secretary of Finance who will have a three-year term of office. The four Boards of the Church asked for a total budget for next year of $18,093,222, which does not include running expenses of churches, salaries of pastors, etc. The Council adopted a "basic budget" of $13,000,000, with an expansional budget of $2,000,000, about the same as that of 1925. The total membership of the Church in 1925 is 1,873,859, at home and abroad, which is the largest in its history, a gain for the year of 42,931.

PRESBYTERIAN CHURCH IN THE UNITED STATES (SOUTHERN)

The General Assembly.—It met in May at Lexington, Ky. The question of the right of women to speak on the floor of the church courts came up again in this conservative body which reaffirmed previous deliverances to the effect that it is "the settled doctrine of our Church that women are excluded from licensure and ordination by the plain teachings of the Scriptures, and, therefore, cannot be admitted to our pulpits as authorized preachers of the Word," nor can they be allowed to exhort or "pray or discuss any question publicly in the mixed meetings of the congregations." The Assembly added that presenting a report to a church court of work done by auxiliary or other associations "is not to be construed as speaking or discussing, provided the women presenting them do not discuss them." There are no bars of this kind in the Northern Church, though Dr. Theodore L. Cuyler, of Brooklyn, was once taken to task for allowing a well-known Quakeress to speak in his Church.

Other Presbyterian Bodies.—There are two other considerable Presbyterian Churches, the Cumberland, which stands in a doctrinal position midway between Calvinism and Arminianism, and the United Presbyterian, which is largely of Scotch origin, and for some years prohibited the use of organs in public worship and the use of modern hymns, holding to Rouse's metrical version of the Psalms. The latter body is known for its enthusiastic support of its benevolences and for its high per capita giving.

There are also two or three bodies of Cameronians or Covenanters, bearing the word Reformed as part of their titles, and two colored bodies.

PROTESTANT EPISCOPAL BODIES

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

PROTESTANT EPISCOPAL

General Convention.—Its General Convention consists, unlike any other ecclesiastical body in this country, of two Houses—a House of Bishops and a House of Deputies, each House meeting separately under its own officers. Concurrence of the two Houses is necessary to any act of legislation. The Convention held its triennial session in New Orleans, La., in October, 1925. Much important business, executive and legislative, was accomplished. The Book of Common Prayer, which has been under process of revision through many years by a Commission of Revision, was taken up by the General Convention for discussion and amendment at the point where it was left by the Convention of three years ago. Action was completed upon the tentative acceptance of the previous General Convention. These involved minor changes in the rubrics on morning and evening prayer, changes in Communion, which were ratified, excepting additional commemoration of the departed in prayer, the printing of the *Agnus Dei*, and a few other proposals; changes in the collects, epistles and gospels, including one in the marriage service, dropping the word "obey" in the bride's answer, the responses of man and woman being identical; a new office for visitation of the sick was added, changes in the burial service, including a new office for children; changes in the ordinal. All these emendations were finally approved. Among the proposals of amendment adopted tentatively for final action by the next Convention were these: allowing "intinction" bread dipped in wine, without offering the cup to laymen; in the burial office having reference to the dead who die unbaptized, by suicide, etc. The Thirty-Nine Articles are to be omitted, if the next Committee ratifies.

Heresy Trial.—The heresy case of Bishop Wm. M. Brown, of Arkansas, was before the House of Bishops at several sessions. He had been tried on charges of heresy, involving, it was contended, the personality of God, the historic reality of Jesus Christ, and the efficacy of His grace through the Church sacraments, had been found guilty, and expulsion or deposition recommended. He had appealed to an appellate Court which had approved of the verdict and recommendation. Final appeal was taken to the House of Bishops, which, after discussion, voted, 95 to 11, Bishop Brown first speaking for half an hour, to confirm verdict and sentence. The House notified the Presiding Bishop of its action and the case ended. Bishop Brown, in his statement, denied that he was an atheist or ever had been. He claimed to accept the Apostles' and Nicene creeds as symbols of his belief, but not as intellectual views, and denied that he had changed any of the beliefs set forth in his book, for which he had been condemned. He asserted that a generation has grown up which considers that ecclesiastical censures are as dead as the divine right of Kings. Stripped of all episcopal and ministerial powers, he remains a layman, simply, of the Church in which he has served so many years. It has become known that some time ago Bishop Brown was admitted to the Old Catholic Church, which came into being after the Vatican Council, as a protest against the dogma of papal infallibility, on confession of faith and without relinquishing his relation to the Protestant Episcopal Church.

None of the cases arising in the diocese of New York in connection with modernism came before the General Convention, and the excitement caused by acts and expressions of some of the rectors appears to have subsided.

The announcement was made that though the contributions for the work of the Church had risen to more than $11,000,000 annually there was a deficit of $1,400,000. This was raised on the floor of the House in a few minutes, Bishop Manning taking the lead with a pledge of $250,000 for New York.

Presiding Bishop Elected.—An election was held for Presiding Bishop of the Church and also for President of the National Council, a general executive Commission administering the general missionary and other denomination work of the Church. From the latter, Bishop Gailor, of Tennessee, retires at the end of his term, and from the former, Bishop Talbot. Among those nominated for both were Bishop Brent, of Western New York, Bishop Gailor, Bishop Burleson, of South Dakota, Bishop Murray, of Baltimore, and Bishop Brown, of Virginia. The choice fell upon Bishop John Gardner Murray, one of the younger Bishops, who entered the Episcopal Church some years ago from the Methodist Episcopal Church. The term of the office in each case is six years. Bishop Murray becomes both Presiding Bishop and President of the Council. The occupant is relieved of diocesan work, resides in New York, and receives a considerable salary fixed by the General Convention and paid from its budget.

Relations with the Federal Council.—A considerable discussion took place on the question of joining the Federal Council of the Churches of Christ in America, consisting of about thirty bodies. The Church has been in coöperation with two Commissions of the Council, but has not become a constituent member. Two years ago the House of Bishops favored membership, but the House of Deputies opposed. The differences at New Orleans were sharp, those who opposed evidently inclining to High Church views, looking rather to the Eastern Churches for alliance than to the Protestant group. Bishop Brent pleaded with great passion and force of utterance for the proposed step forward, while Bishop Gailor characterized it as "dangerous." It was defeated by a tie vote; a two-thirds majority being required, but later on it was agreed that the Church should be represented on seven of the Council's commissions, instead of two simply.

Title.—A proposition, often made before, to drop the word Protestant from the title-page of the Book o Common Prayer, as the name of th Church, was brought forward an after a hot discussion was voted down the contention of the proponents bein that the Church belongs to the Catholic order of Christianity and not t the Protestant. The question whethe ministers should be allowed to reserve the elements of the communion lef after the service, was declared in the negative, low churchmen accusing the Catholic party of desiring to reserve it, not simply for the sick, but fo adoration as the mass.

The Rev. Dr. E. M. Stires, of New York, served as President of the House of Deputies very acceptably and retired at the end of the Convention to become Bishop of Long Island

The pastoral letter.—Issued by th House of Bishops at the close of the Convention, this speaks of an amazing growth of wealth with no corresponding increase of stewardship, of a lowering of standards of home life due to lack of parental control and of a widespread revolt against Christian morality indicated in literature, especially. The increase in juvenile crime is ascribed to want of Christian education. The remedy for this state of things is the preaching of the Gospel of Christ with new power. This is the hope of the world. Continuation in the ministry must depend on loyalty to the creeds. Faith in Christ is greater and simpler than assent to intellectual propositions.

Anglo-Catholic Congress. — This body, which represents those ministers and members who find themselves in sympathy with the position of the Church of Rome on most points, excepting principally the doctrines of Papal Infallibility and the Immaculate Conception, held its first Congress in the United States, after the Episcopal General Convention, meeting in New Haven, in November, 1925. There are various parishes where Catholic practices, the mass, auricular confession, etc., are observed. They lay stress upon the sacramental life and urgently desire fraternity with the Church of Rome and the Orthodox Eastern Churches. A paper was read at the Congress, in which it was contended that Anglo-Catholics have nothing in common with Protestantism. One of their aims is to eliminate the word Protestant from the title of the Church. They recognize monasticism, and have two orders, with vows—the Society of St. Paul the Evangelist, and the Holy Cross. "Father" Campbell, a member of one of them, was released from his monastic vows when he was consecrated Bishop of Liberia. Several bishops attended the Congress, and Bishop Burgess, of Connecticut, warmly welcomed it. In the Church of England, where the Catholic party is both older and stronger, it seems to have less favor from the Bishops than in this country. The Bishops of the Canterbury Province recently met to consider the question of prayer-book revision. The Catholics are understood to desire an alternative revision which will recognize some of their practices. To this some prelates decidedly object, though they recognize the need of changes in the ritual, which have been delayed two centuries.

Cathedrals.—Among notable recent enterprises in the Church is the erection of a great cathedral—St. John the Divine—in New York City, to whose pulpits representatives of all Christian denominations are welcomed, and the adoption of plans for a cathedral in Washington, D. C. Contributions of many millions for the New York minster have been sought and obtained, and construction is proceeding rapidly, the cornerstone of the nave having been laid in November, 1925.

REFORMED EPISCOPAL

A small body seceding from the Protestant Episcopal Church many years ago under the leadership of Bishop Cummins have several bishops in the United States and one in Canada. Their position is favorable to union, as their organ represents, since they are evangelical, liturgical, episcopal and democratic. They also claim to be comprehensive as appears in the union of episcopal oversight in parochial self-government. They baptize by sprinkling, aspersion and immersion, and recognize in both theory and practice the validity of all properly constituted ministries and the regularity of the membership of all Christian Churches, who are invited to their communion tables.

ROMAN CATHOLIC

By H. K. Carroll

Corresponding Secretary, Asbury Memorial Association

JUBILEE YEAR

Rome.—The See of Rome, the center of the world-wide Catholic Church in government and supervision, was the goal of Catholic interest and Catholic pilgrimages in 1925, which had been proclaimed as Holy Jubilee Year by the Pope. This event recurs on every twenty-fifth year in the calendar of the centuries, and is a usage which goes back through many centuries. The Papal bull permitted all the faithful who should make the pilgrimage to Rome in 1925 a plenary indulgence under certain conditions, among which were these: fervent confession and reception of the communion, from which no one could be excused except those who were unable to attend; visits to the basilicas of St. Peter, St. Paul, St. John Lateran and St. Mary Major in Rome, at least once in the day for the ten consecutive days; prayers for the intentions of the Pope.

Great numbers of the faithful made the pilgrimage from the United States and other countries to Rome during the year, and many were the preparations made for their reception and instruction. Among other things a great map, said to be the largest in the world, was displayed in the Congregation for the Propagation of the Faith, in charge of Catholic Missions throughout the world, showing the vastness of the missionary enterprise in all quarters of the globe.

Missionary Exhibit.—A missionary exhibit occupied ten temporary buildings 50 by 200 feet each in size. Besides these there were tributary buildings and one of the corridors of the Vatican Museum four hundred feet long was given to the display. Among the rooms especially interesting were those of the Holy Land, of the Martyrs, the latter embracing many scenes of martyrdom and instruments of torture used upon Christian martyrs. The breviary and sandals of St. Francis Xavier, missionary to India, are shown, and sabers used in the Boxer uprising in North China, a few years ago, to massacre faithful Chinese Christians who would not abjure their faith. Also a statue of Pope Gregory, who receiving the deputation from pagan England—with "angles, slaves of fair complexion"—called them "angels rather," and sent preachers to the British Isles. Challenges to increase missionary labor appeared in placards like the following: "Bengal, 15,000 Catholics, 19,000,000 pagans, with but 19 priests to a million; 2,200 children in Catholic Schools, 8,000,000 yet to reach." It is said that Pope Pius XI, following the example of Leo XIII, twenty-five years ago, will issue a bull extending the jubilee indulgence of 1925, to 1926 for the whole world, particularly to those unable to come to Rome.

Ecumenical Council.—An Ecumenical Council is to be called for the Church in Rome, in 1926, at which new dogmas may, perhaps, be proclaimed.

Women's Dress.—A war against immodest dress in Catholic Churches has been in progress, beginning at Rome, where a circular issued by the Central Holy Year Committee gave notification that all women visiting churches in a garb in violation of the rules would be ejected. All the Italian bishops published pastorals on the subject.

Boy Scouts at Rome.—Among the bodies in Rome during the Jubilee Year to attract attention were the Boy Scouts from America, England and others. As they paraded the streets they were the observed of all observers and they were honored by the Pope with an audience in which he addressed them quite at length welcoming them to the Vatican and praising them for their marching order and fine appearance.

The Catholic Union.—Another body in which America is represented has, as its aim, the promotion of union of the Eastern Orthodox Churches, the outcome of the division of Christendom at the end of the first thousand years of Christianity, by the separation of the two Capitals, the Eastern, Constantinople and the Western, Rome. Some of these Oriental Churches have long had representatives in the Church of Rome, called uniates, who have certain ecclesiastical privileges, such as celebration of certain rites in their own language instead of in the Latin, and marriage of the secular as distinguished from the monastic clergy. There are considerable bodies of uniates in the United States as well as of the Russian, Greek, Bulgarian, Roumanian, Syrian and other Eastern Orthodox bodies.

POLISH CHURCH

Near the end of 1925, a Polish prelate, Archbishop Cieplak, for many years head of the Roman Catholic Church in that country, made a visit to the United States. It appears that the Soviet Government confiscated and sealed 328 Catholic Churches in Russia, and in March, 1923, arrested the Archbishop, with fifteen priests and placed them in prison. The former was condemned to death, but escaped. He has since been appointed Metropolitan of Vilna, Poland.

Conventions.—Annual meetings are numerously attended and influential. That of 1925 was held in Duluth, Minn. It represented a body of 751,882 members in the United States and Canada, a loss in 1925 of 18,442. There is also a National Council of Women, the fifth annual convention of which was held in Washington, D. C., in November. One of their decisions was to raise $600,000 for the National Catholic School of Social Service, which has been in existence five years. Education, immigration, girls' welfare, peace, rural problems and women in industry were among the subjects considered by the Council. An invitation was received and accepted from Cardinal Mundelein, of Chicago, to attend and assist in making known the Eucharistic Congress in 1926, in Chicago. He said Chicago is idealistic and that the time has come to assert the fact that while America is said to be the land of unbelief it is in reality less so than other countries. The Council condemned immodest dress of women, birth control and the downward trend of literature.

The Catholic Educational Association.—This body reports on Colleges and Secondary Schools, setting forth the need of a constructive policy in Catholic education, of the development of the parish school system and of the needs of the seminaries and libraries.

Many Catholic churches observed in December, 1925, the sixteenth centenary of the Nicene Creed, one of the ecumenical creeds accepted by most orthodox churches of the Protestant as well as the Roman Catholic and Eastern Orthodox communions. It was adopted in 325 to combat the Arian heresy.

Rural Churches.—The Roman Catholic Church has its rural problems as do other churches in the United States. The migration from the country to the centers of population causes many heretofore prosperous churches to grow weak to the point of abandonment. The first diocesan council of the kind was held in Baltimore, in October, 1925, at which it was stated that the chief aims of the movement are the privacy of the family and assertion of private ownership of productive property. City living is not helpful to family life but rural living is, it was declared; and the future of the Church lies in the country.

The thing to be done is to anchor to the land the largest number of capable and imaginative members of the newer generation. The country pastor, with this object in view, should study the economic situation of the farmer, social and intellectual life on the farm, and condition of health. Farm industries need to use electric power and other modern appliances. Vacation schools should be established for the teaching of modern methods. Another such conference was held in New York, at which it was said that there was not a diocese in the United States which has not a rural problem.

SUMMARY OF STATISTICS OF THE CHURCHES FOR 1924

Covering the United States Only

Denomination	Ministers	Churches	Communicants	Communicant Gains, 1924
Adventists, 5 bodies	1,507	2,994	144,167	4,819
Assemblies of God	1,070	826	75,000	5,000
Baptists, 14 bodies	52,720	63,302	8,292,663	146,442
Brethren (Dunkards), 4 bodies	3,824	1,314	143,887	1,192
Brethren (Plymouth), 6 bodies [c]	...	458	13,244	.....
Brethren (River), 3 bodies	164	88	4,742	[d] 1,220
Buddhist Japanese Temples [c]	34	12	5,639	.....
Catholic Apostolic, 2 bodies [c]	13	13	2,768	.....
Catholics, Eastern Orthodox, 9 bodies	638	637	726,650	79,200
Catholics, Western, 3 bodies	23,753	17,620	16,092,964	222,145
Christadelphians	...	77	3,960	28
Christian Church	1,148	1,138	108,500	5,409
Christian Union	380	322	17,500	300
Church of Christ Scientist [a]	3,758	1,879	.....	.....
Church of God and Sts. of Christ [c, b]	101	94	3,311	.....
Churches of God (Winebrenner)	430	463	26,965	412
Churches of God Gen'l Assembly	923	666	21,076	.....
Church of Living God, 3 bodies [b]	150	135	3,650	150
Churches of New Jerusalem, 2 bodies	110	95	6,532	[d] 541
Church of the Nazarene	2,289	1,386	55,142	4,421
Communistic Societies, 2 bodies	...	13	1,784	.....
Congregational Churches	5,613	5,680	878,995	17,827
Disciples of Christ, 2 bodies	8,861	14,336	1,668,906	47,703

[a] Does not report members.
[b] Colored.
[c] Census of 1916.
[d] Decrease.

SUMMARY OF STATISTICS OF THE CHURCHES FOR 1924 *(continued)*

Denomination	Ministers	Churches	Communicants	Communican Gains, 1924
Evangelical Church (lately 2 bodies)....	2,013	2,239	209,684	8,722
Evangelistic Associations, 15 bodies [c]....	444	207	13,933	.....
Evangelistic Protestant [c]	34	37	17,962	.....
Evangelical Synod (German)...........	1,170	1,328	307,177	6,728
Free Christian Zion [c, b]...............	29	35	6,225	.....
Friends, 4 bodies....................	1,361	942	116,077	.....
Jewish Congregations [c]	721	1,901	357,135	[d] 33
Latter-Day Saints, 2 bodies.............	10,157	1,764	623,744	15,929
Lutherans, 18 bodies..................	10,255	15,228	2,503,642	37,801
Scandinavian Evangelical, 3 bodies......	583	475	42,758	606
Mennonites, 12 bodies................	1,584	995	85,639	3,000
Methodists, 15 bodies.................	44,449	63,358	8,700,007	79,974
Moravians, 2 bodies..................	158	159	26,802	804
Nonsectarian Bible Faith Churches......	103	101	5,739	889
Pentecostal, 3 bodies.................	1,136	592	18,641	2,362
Presbyterians, 9 bodies...............	14,301	15,697	2,500,466	37,909
Protestant Episcopal, 2 bodies..........	5,837	7,853	1,147,814	7,738
Reformed, 3 bodies...................	2,328	2,746	532,668	[d] 32
Salvation Army	4,378	1,398	70,974	12,416
American Rescue Workers.............	460	135	6,546	2,020
Schwenkfelders	6	7	1,439	44
Social Brethren	13	18	1,000	.....
Society for Ethical Culture............	12	7	3,000	.....
Spiritualists	600	680	56,640	.....
Temple Society [c]	2	2	260	.....
Unitarians	476	440	58,024	2,822
United Brethren, 2 bodies.............	2,177	3,694	405,103	10,540
Universalists	575	651	59,650	.....
Independent Congregations	267	879	48,673	.....
Grand Total, 1924.................	213,190	237,096	46,231,102	745,887
Grand Total, 1923.................	210,593	237,001	45,485,215	

[b] Colored. [c] Census of 1916. [d] Decrease.

JUDAISM AND JEWISH COMMUNAL ACTIVITIES

By Bernard G. Richards

Executive Secretary, American Jewish Congress

Religious Education.—The year 1925 closes an important chapter in the history of the American Jewish community. It was the first year since the enactment of the new Immigration Law, which reduced the number of Jewish immigrants to an insignificant figure estimated to be one-fifth of the volume of Jewish immigration to the United States as reported in the previous year. Despite the prevailing opinion that the future of Judaism in the United States is largely dependent upon the volume of European immigration, the arrival of large numbers more deeply imbued with Jewish religious teachings and traditions, the past year, proved the opposite. Regardless of the curtailment of this immigration, Jewish religious, cultural and educational activities have taken a new and more intensive form.

While the Jewish population in the United States is roughly estimated to be about 3,000,000, the sum of not less than $7,000,000 is being spent annually for the purpose of instructing the young in the teachings of the Jewish religion, history and the Hebrew language. These activities in most instances run parallel to extensive work for the general education and Americanization of the immigrant. Schools of various types, ranging from Sabbath schools, with English as the language of instruction, to part-day and full-day Hebrew schools, with Hebrew and in some instances Yiddish as the language of instruction, are functioning in every considerable center with a Jewish population. Leaders of this movement have continually emphasized the fact that these schools do not reach more an 50 per cent. of Jewish children of school age, expressing uneasiness about the lack of facilities religiously to educate the rest.

Synagogues and Community Centers.—A very intensive activity developed during the year with regard to the construction of synagogues and community centers. These community centers represent a new institution in the American Jewish life, designated to serve the religious and cultural interests of the group. Designed as a meeting-ground for the young and old, these centers serve as a medium for social recreation and for the development of cultural and religious activities. Not less than 85 buildings were erected or were under construction during the year in 85 communities. The cost of erection ranged from $2,000 to $200,000.

Training of Rabbis.—Of primary interest in this direction were the activities of the four institutions which have for their purpose the training of rabbis and leaders for the Jewish communities. Though belonging to four different shades of thought, they represent in their totality an effort towards one common need: to preserve Judaism in the modern American environment. The Hebrew Union College, Cincinnati (Dr. Julian Morgenstern, President) which is the oldest American Jewish institution of learning, celebrated on October 26, 1925, its 50th anniversary. This served as an occasion for impressive ceremonies at the seat of the College, where all the alumni and leaders of the reformed Jewish pulpit were present. Coincidentally was held the 21st Annual Convention of the Central Conference of American Rabbis, the representative body of the reform movement, which was initiated by the late Dr. Isaac M. Wise, the founder of the Hebrew Union College. Six students graduated as rabbis from the Hebrew Union College in 1925.

Jewish Theological Seminary.—The Jewish Theological Seminary, of America, situated in New York City, of which Dr. Cyrus Adler is President, stands for Conservative Judaism. It is an institution which trains its graduates in the support of traditional Judaism. This shade of belief is commonly known as that of the conservative tendency in Judaism as between the reform and the ultra-orthodox. Fifty-one students graduated from this seminary as rabbis and twenty-one graduated from its Teachers' College during the year.

Institute of Jewish Religion.—This was recently established in New York City with Dr. Stephen S. Wise as the acting President. Though it is closely to be identified with the liberal movement in Judaism and is intended to supplement the training, which is carried on in Cincinnati, in the larger community of New York, the Institute is, at the same time, of an original character in view of the fact that it has for its model the type of a free synagogue standing for a generally progressive and forward-looking outlook and an emphasis on the spiritual rebirth of Israel in ancient Judea as conceived and propounded by its acting President. Eight students of this institution graduated during the year, while the first large graduation is expected to take place in May, 1926.

The Yeshiva.—The ultra-orthodox group of congregations looked for their inspiration and religious leadership to the Yeshiva (Isaac Elchanan Seminary), of which Dr. Bernard Revel is President, a purely orthodox seminary, which was originally established in New York City 28 years ago. Twelve rabbis graduated from this institution during the year and eighteen teachers. An important development in this school is the plan to transform the Yeshiva into a Yeshiva College, which would combine a broad Jewish and Talmudic education with a college course for its students, being the first of its kind, a college modelled along parochial lines. A campaign for $5,000,000, of which $2,000,000 has already been raised, is on the way to secure the erection of five modern buildings at Amsterdam Avenue and 124th Street, New York City.

Synagogue Plans.—Two outstanding projects with regard to the construction of synagogues attracted wide attention among American Jews. One was that of erecting a Synagogue Center in Jerusalem at the cost of $500,000. This plan which was originated by the United Synagogue of America, an organization of recent date, comprising those congregations which belong to the conservative type, is unique in its scope, representing the first effort in behalf of American Jewry to do religious work among the pioneers in Palestine. It is also significant that the Synogogue Center, which is the result of American Jewish conditions, is being transplanted to the Holy Land. The other plan is to erect a national reform temple in Washington. The plan is fostered by the reform rabbis, headed by Dr. Abram Simon of Washington, former President of the Central Conference of American Rabbis.

Protection of Jewish Rights.—The tradition of American Jewry to take an interest in the political, cultural and economic welfare of the frequently troubled Jewish communities in European lands was continued through the year. The American Jewish Congress, an organization created during the war, and subsequently maintained for permanent purposes, consisting of delegates from various national Jewish organizations and committees throughout the United States, held its biennial session in Philadelphia October 25 and 26, 1925. Reports of activities in connection with the protection of Jewish rights, help extended to stranded Jewish refugees, the combating of anti-Semitism, etc., were then presented to the delegates. Mme. Anitta Mueller-Cohen, the widely known Jewish social worker of Vienna, and Dr. Leon Reich, President of the Club of Jewish Deputies in the Polish Scheim, delivered the chief addresses. The Congress organization, for a number of years headed by Nathan Straus, is now actively presided over by Dr. Stephen S. Wise, with Carl Sherman as Chairman of the Administrative Committee.

The American Jewish Committee, made up of notable men in Jewish life in different parts of the country, and presided over by Mr. Louis Marshall, held its annual meeting on November 9, 1925, and received reports on t Jewish situation in different lanc

The Independent Order B'nai Brit now headed by Alfred M. Cohen Cincinnati, and the Independent C der Brith Abraham, Adolph Ster Grand Master, as well as other frate nal organizations and federations, c operating in work of a patriotic ar philanthropic character, held impo tant gatherings during the year.

Foreign Relief.—Further efforts f the relief of suffering Jews in var ous parts of the world are now bein undertaken by American Jewry. I addition to the $60,000,000 raised b the Joint Distribution Committee du ing and after the war, a national con ference of representative Jews hel in Philadelphia on September 13, d cided to empower the committee t launch an appeal for $15,000,000, t be raised in the course of the nex three years for the purpose of bring ing relief to the suffering Jewis communities in Eastern Europe an mainly in Russia.

In continuation of the work on be half of the American Jewish Com munity for the reconstruction o Palestine as the Jewish Nationa Homeland under the mandate of th League of Nations, entrusted to Grea Britain, a call for $5,000,000 has bee issued by the United Palestine Ap peal, composed of various Palestine activities and headed by Dr. Stephen S. Wise.

Literary and Journalistic Activities.—Mention might be made of the continued issue of important Jewish books by the Jewish Publication Society, Simon Miller, Philadelphia, President; the extension of influence on the part of the *Menorah Journal*, a high class literary publication, initiated by college men, and now being spread to other circles, under the editorship of Henry Hurwitz; the establishment by the Jewish Telegraphic Agency of the *Jewish Daily Bulletin*, a miniature but comprehensive record of Jewish events, of which William Z. Spiegelman is the editor and Jacob Landau the publisher.

PART SIX
SCIENCE—PRINCIPLES AND APPLICATION

DIVISION XXVIII
MATHEMATICS AND ASTRONOMY

MATHEMATICS

By G. A. Miller
Professor at University of Illinois

Mathematical Monographs.—Among all scientists the mathematicians have developed the most extensive special languages and hence the results of the modern mathematical investigators require the most exhaustive expository developments in order to make them directly useful to those who could profit thereby. The year 1925 marks the beginning of the publication of two series of monographs which promise much along the line of such developments relative to advanced fields of modern mathematical research. One of these is an American series known as the *Carus Mathematical Monographs,* which are being published under the auspices of the Mathematical Association of America through funds provided by Mrs. Mary Hegeler Carus. The other is a French series known as *Mémorial des Sciences Mathématiques,* which appears under the patronage of the French Mathematical Society and various other scientific organizations, including the scientific academies of Paris, Servia, Belgium, Bucharest, Poland, Ukraine, Spain, Prague, Rome (dei Lincei) and Sweden. It is published under the general direction of M. Henri Villat, editor of Liouville's *Journal de Mathématiques.*

The first of the Carus Mathematical Monographs is devoted to the *Calculus of Variations* and was prepared by Professor G. A. Bliss, University of Chicago, who has for many years worked successfully in this field and has directed a large number of theses by graduate students who investigated special problems related thereto. It presents in an unusually clear manner the fundamental elements of this wide and fruitful subject, presupposing only a first course in elementary differential and integral calculus. These monographs are supposed to be comprehensible not only to teachers and students specializing in mathematics, but also to scientific workers in other fields, and especially to the wide circle of thoughtful readers who, having a moderate acquaintance with elementary mathematics, wish to extend this knowledge without prolonged and critical study of the mathematical journals and treatises. The French series of monographs is intended for those who have higher mathematical attainments and its publication has progressed much more rapidly. The first number was written by P. Appell, University of Paris, and appeared under the title *Sur une forme générale des équations de la dynamique.* This series takes the place, in part, of the publications of the large French mathematical encyclopedia which was discontinued during the World War, and a large number of monographs forming a part thereof have been announced as either in press or in preparation.

Chauvenet Prize.—During the Ithaca meeting of the Mathematical Association of America, which was held in September in conjunction with the American Mathematical Society, the trustees of the Association instituted a prize to be known as the Chauvenet Prize for Mathematical Exposition, which is to be awarded every five years for the best expository mathematical journal article by a member of the Association, published in English during the five calendar years preceding the award. Professor E. B. Van Vleck, University of Wisconsin, was appointed chairman of the scrutinizing committee for the first award, which is to relate to the five years ending with the calendar year 1924. Two additional American mathematical prizes have recently been established, viz., the Bôcher Memorial Prize, announced in 1922, and the Frank Nelson Cole Prize in Algebra, announced in 1923. Both of these perpetual prizes are under the auspices of the American Mathematical Society and are to be used for the promotion of mathematical research. Unfortunately the amount of money available for the encouragement of such work in our country is still too limited.

Recent Advances.—The thirty-first summer meeting of the American Mathematical Society was held at Cornell University September 8-12 for the purpose of discussing current advances. Most of these advances are presented briefly by their authors in the form of abstracts of papers which appear later in the various mathematical periodicals, but sometimes series of lectures are also given on fields of research which seem to offer unusually attractive and important problems, especially for the younger investigators. These lectures are published later under the auspices of the American Mathematical Society and are known as the "Colloquium Lectures" of this Society. During the meeting under consideration two such courses of five lectures each were given by Professor L. P. Eisenhart, Princeton University, and Professor Dunham Jackson, University of Minnesota, respectively. Professor Eisenhart considered "New Differential Geometry" and developed in a masterly manner and often from a new point of view many recent results in a field which has been greatly enriched by his own investigations. Professor Jackson considered the "Theory of Approximation," with his unusual gift of clear presentation. He, too, has contributed extensively towards the development of the general subject considered by him at this time and pointed out new methods for its further study.

More than fifty other mathematical papers were presented at this meeting, evidencing the growing vigor with which mathematical research is now being prosecuted in our country. The papers were distributed under four headings as follows: Geometry, Point Sets and Foundations, Analysis, and Algebra and Theory of Numbers. In order to allow more time for discussion, meetings were held simultaneously in different rooms, due notice being given as to the time when the various papers were to be considered. Each paper was supposed to represent, and probably did represent, an actual advance whose importance cannot be fully appreciated now since some apparently slight variations in point of view are often fraught with the most important consequences, while other distinct advances remain less fruitful. There naturally is, however, a feeling that some of the researches are more important than others but this feeling is not always justified by later developments. The criterion of such developments is perhaps stressed too little since some authors desire immediate recognition.

The American Mathematical Society holds regularly seven meetings during the year, while three additional meetings are usually held west of the Mississippi River by sections thereof. All of these meetings are devoted mainly to the consideration of current researches on the part of its members and a few others. In view of the definiteness of mathematical advances these meetings present a very inspiring picture of the growth of the intellectual wealth of the human race along a certain line, especially when it is remembered that similar work of an equally high character is being done in various other countries. It is sometimes assumed that much of this work is only of transitory value. While a great deal of it may lose its identity as it is being embodied in more comprehensive theories, it has accomplished an important function in helping to make possible these new theories, which, in turn, usually give rise to something better. In view of the multitude of the new results it is often difficult to select a representative list which can be described in a brief space.

Jacques Hadamard.—Professor Hadamard, Collège de France, Honorary member of the London Mathematical Society and one of the six members of the pure-mathematics section of the Paris Academy of Sciences, spent about two months in America (April 26 to June 17) in travel and in lecturing at the Universities of Illinois, Wisconsin, Indiana, California, Stanford, and Rice Institute, on the following subjects: Huygens' principle; some recent points of view on the notion of functions; second period of the work of Poincaré on differential equations; and some recent improvements in the geometry of circles in space. In his opening lecture Professor Hadamard commented on the rôle played by errors in the development of mathematics, illustrating his remarks by erroneous published views relating to Huygens' principle. Obviously such errors tend to advance mathematics only when they are clearly pointed out and there seems to be a growing tendency to deal frankly with errors even if this course still meets with occasional opposition. While mathematics deals in the main with matters that can be definitely proved, a considerable amount of mathematical progress has resulted from noting contradictions due to false assumptions made by some of the foremost investigators or to inaccuracies in their developments. Fortunately the literature used in secondary schools is comparatively free from such errors but even here there is often much room for improvement, especially as regards clarity and definiteness.

History of Mathematics.—The publication early in 1925 of volume 2 of the *History of Mathematics* by D. E. Smith, Teachers' College, Columbia University, completed a work which was awaited with much interest on the part of many American teachers of mathematics in view of the eminence of its author along pedagogical and historical lines, and the unique character of the work. It is not only the most extensive so-called general history of mathematics ever published in our language, involving about 1,350 pages, but it devotes an unusually large amount of space to questions relating to the older and most elementary developments, and presupposes very meager mathematical attainments on the part of its readers. It aims to arouse interest not only by referring frequently to curious non-mathematical facts but also by including some fiction, for instance, the portraits of Plato and Leonardo Fibonacci are explicitly acknowledged to be unauthentic, (volume 1, pages 87 and 214). Fortunately, the element of fiction affects only slightly the reliability of the work as a whole since it is usually clearly exhibited, as in the instances just noted. The number of actual misstatements is somewhat large but probably most of these will be corrected in later editions. In the meantime it is a good exercise for the student to try to find such statements.

The most serious question relating to this history of elementary mathematics is its possible influence on the teaching of mathematics in our high schools. As comparatively little emphasis has thus far been placed on the history of mathematical subjects the effect of the present work will be watched with much interest on the part of those who are directly concerned with our mathematical development. The literature of various other countries includes a number of very brief outlines of the history of elementary mathematics and recently there appeared in Germany an equally extensive work devoted to this general subject but written from a widely different point of view. In fact, as regards the extent of recent popular mathematical historical textbook literature America occupies now a conspicuous position. Some of the subjects considered in the present work, in particular those relating to the mathematics of the Orient, have as yet received too little attention on the part of historians to be finally settled. It is therefore to be hoped that much fruitful discussion will center around this publication. In fact, a slight beginning along this line has already been made. [Cf. *School Science and Mathematics*, vol. 24 (1924), p. 939.]

The most important feature of the history of mathematics is its portrayal of a fundamental element of the history of civilization, viz., the element relating to the intellectual penetration into our surroundings based on numerical relations. The value of this feature has always been recognized and it is illustrated by the fact that mathematics has occupied a prominent position in nearly all the educational systems of the world of which we have any record. The modern tendency in the development of mathematics has been towards greater emphasis on the number concept and it is sometimes said that this tendency was inaugurated by A. L. Cauchy (Cajori, *History of Mathematics*, 1919, p. 369). On the contrary, attention was recently called (*Science*, vol. 62, p. 328) to the fact that arithmetization is a fundamental principle in the history of mathematics, comparable with the principle of evolution in the natural sciences. Such fundamental concepts as the irrational, limit, function, coordinate, etc., were slowly arithmetized, so that arithmetization has played at least as fundamental a rôle in the developments of elementary mathematics since the golden Greek period as in the more recent investigations relating to modern mathematics.

Personal Notes.—Professor S. Lefschetz, Princeton University, was elected member of the National Academy of Sciences. Professor G. D. Birkhoff, Harvard University, was elected President of the American Mathematical Society. Professor J. L. Coolidge, Harvard University, was elected President of the Mathematical Association of America. Professor R. Schorling, Michigan University, was reëlected President of the National Council of Teachers of Mathematics. Professor W. H. Roever, Washington University, was elected chairman of the Mathematics Section of the American Association for the Advancement of Science.

Klein.—Professor F. Klein, Foreign Associate of the National Academy of Sciences, died at Göttingen, Germany, June 22, 1925, at the age of seventy-six. During the World's Columbian Exposition, held at Chicago in 1893, he delivered a series of inspiring lectures which were published by the American Mathematical Society under the title *Evanston Colloquium*. A large number of American students studied with him at the Universities of Leipzig and Göttingen.

According to *Nature* (vol. 116, p. 476), "It appears, what will be news to many, that Klein's life was lived under a resolve, never relinquished, made when serving Plücker as assistant for his lectures on experimental physics, to devote himself to physics. He desired only, first, as a preparation for this, to make himself acquainted with all branches of mathematics, in order to trace the connections of their leading ideas, and to be in position to raise physics to a higher plane." This resolve was realized only in the work of students whom he inspired and was partly modified by a serious breakdown of health at the age of thirty-three. With a view to bringing under one point of view a large part of the mathematical output of the last century he emphasized the group concept. In particular, his Erlangen Programme, translated by M. W. Haskell, University of California, for the *Bulletin* of the American Mathematical Society [vol. 2 (1893), p. 215] exhibits the unifying principle of this concept in recent researches in geometry. Since 1908 Klein devoted a large part of his time to the work of the "International Commission on the Teaching of Mathematics" of which he was President, and under whose general supervision an extensive literature relating to the teaching of mathematics in various countries has arisen. Unfortunately the World War made it impossible to continue this work, which promised much for the general improvement in the teaching of mathematics.

Another important mathematical world movement in which Klein was the most influential figure relates to the large mathematical encyclopedias in German and French. Unfortunately, here too the World War interrupted the work and led to serious curtailments. Klein was not only one of the originators of this encyclopedia but he traveled far and near to secure the best writers for the various parts thereof. He was especially sympathetic with the emphasis on mathematical physics found in England and deplored the fact that German mathematicians laid less stress on this contact of their subject. While his original memoirs (which were collected recently and published in three large volumes) are very inspiring yet he exerted his greatest influence by suggestions during discussions and by lectures. Probably no mathematician exerted a wider direct influence during the last half century. The impress which he made on mathematics as a whole, including the elementary parts thereof, is one of the outstanding facts in the history of recent mathematical developments. It may therefore be a matter of surprise to many that his name does not appear in the extensive indexes of the history of elementary mathematics noted above, especially to those who believe that the mathematical student should become acquainted with the history of the most important current movements in his special field as early as may be possible.

ASTRONOMY

By Raymond S. Dugan
University Observatory, Princeton University

Meeting of the International Astronomical Union.—The third meeting of the Union, which was organized at Brussels in 1919 and which convened again in Rome in 1922, was held in July at Cambridge, England. Twenty countries were represented by delegates. Coöperation is peculiarly necessary in astronomy: the personnel is small; observatories are few, and the instruments of research expensive; many of the problems are large and must be attacked from various angles over a period of years and from various points on the earth's surface, and the expense of research and printing borne internationally; and, finally, rapid progress is possible only if effort is wisely directed with the aid of consultation with other workers in the same field.

While coöperation has always existed among small groups of astronomers, and while the participation of observatories in the elaborate undertakings of the *Astronomische Gesellschaft* Catalogue, the photographic *Carte du Ciel* and the Solar Union have shown the possibility of coöperation on a large scale, the I. A. U. now forms a general clearing house of all matters of importance to the science of astronomy. The organization includes twenty-six committees or "commissions," such as those of Notations and Units, Bibliography, Ephemerides, Wave-lengths, Double Stars, Variable Stars, etc., composed of specialists in these fields, which prepare and present to the meeting reports of progress and recommendations. These form the basis for discussion during the meeting. It is not possible, in the space available, to mention all the important decisions reached at the meeting. A special committee will consider the designation of time counted from midnight and the hour of commencement of the Julian Day.

Designation of Time.—Up to 1925, the positions and other data of the sun, moon, and planets published in the national almanacs and ephemerides were given for noon, and astronomers and navigators reckoned with the day beginning at noon and employed, in their methods and formulæ, Mean Time (local or Greenwich) counted from noon and, therefore, equivalent to the hour angle of the Mean Sun. The change to the use of the Civil Day, beginning at the previous midnight, was made on January 1, 1925, with a view to simplification and the removal of confusion. The old confusion has been replaced by new. As the designation of the time since Greenwich midnight, the American Ephemeris uses Greenwich Civil Time (G. C. T.); the Nautical Almanac (English) retains the old designation, Greenwich Mean Time (G. M. T.), in the new sense; others suggest the adoption of "Universal Time." Unfortunately the committee was unable to report that there was yet sufficient accordance of opinion among astronomers to warrant a decision as to the best designation. It was decided, however, to continue the noon beginning of the Julian Day, as the use of this unit of time, for the ready calculation of the time interval between two observations, is almost entirely confined to astronomers.

Multiple Names of Stars.—A committee was formed to revise the boundaries of the constellations so as to avoid multiple names for stars. Accounts were given of work being done on the construction of large glass reflectors, with a composite glass back and a relatively thin glass disk in front, and of experiments looking to the use, for this purpose, of fused silica, which shows negligible deformations with temperature changes. Support was given to the project of a solar observatory in Japan to bridge the gap between Mt. Wilson and Kodaikanal and thus to make more possible continuous observation of the sun. Observatories were urged to make observations of the sun, as nearly continuous as possible, at or about the times when magnetic storms were in actual progress or were to be expected in accordance with the twenty-seven-day cycle. It was agreed that the variation of the solar radiation ought to be more generally studied with special reference to its influence on meteorological elements in different parts of the world. Four lines in the spectrum of Neon were adopted as secondary standards, from which the wave-lengths of other lines are to be determined, and an exact specification adopted for the production of the primary standard wave-length, that of the red line of Cadmium, $\lambda 6438.4696$.

Commission on the Determination of Longitude by Wireless reported plans for a world-embracing survey by means of "rhythmic signals" (permitting of the method of coincidences) sent from Bordeaux, Honolulu, Särgon, and Annapolis. The signals will be recorded at a small number of observatories, where the necessary observations for the determination of local time can be made with transit micrometers. It is planned to commence the experiments on October 1, 1926, and to continue them for two months. The report of the Commission on Stellar Photometry contained estimates by Seares and van Rhijn of the number of stars in the whole sky to the twentieth visual and the twenty-first photographic magnitudes as 1,000,000,000 and 890,000,000 respectively.

Southern Observatories.—General studies of the structure of the universe have been handicapped by the lack of material regarding the stars of the southern sky. Accumulation of data has progressed slowly, because of the comparative lack of instrumental equipment in the southern hemisphere. The work of the established southern observatories has been supplemented, to some extent, by more or less permanent expeditions from northern observatories. Harvard has a station at Arequipa, Peru, where the Harvard plan of repeatedly photographing the sky and the classification of stellar spectra is carried on; the Lick Observatory station at Santiago, Chile, was established to secure radial velocity spectrograms of southern stars. Yale Observatory has just installed at Johannesburg, South Africa, for a period of years, a 26-inch photographic refractor. This instrument will be used chiefly in the measurement of the distances of the southern stars. The same problem will form the chief program of the new 26½-inch telescope, which is being installed at the Government Observatory in Johannesburg, and of the 24-inch, which is the principal instrument of the new Bosscha Observatory established by the Dutch East Indian Astronomical Society at Lemberg, Java. Another 24-inch telescope is being sent out to Bloemfontein by the University of Michigan. It will be used for an extension to the South Pole of the double-star survey, already completed by Aitken and Hussey from the North Pole to 14° south declination, of all stars brighter than the ninth magnitude.

Eclipse of the Sun, January 24.—The total eclipse of the sun on the morning of January 24 was a very satisfying event. The shadow of the moon reached the earth at sunrise about 150 miles northwest of Duluth, Minn. Thence it traveled east, southeastward across Wisconsin and Michigan, Ontario, New York, Connecticut and Rhode Island and out into the Atlantic, where it again swung northward and left the earth north of Scotland. The belt of totality increased from a width of about 80 miles at the western end to one of fully 110 miles in Connecticut. It covered one of the most thickly populated sections of the United States and was easily accessible from a large bordering area. The area over which the eclipse was partial covered a large part of North America, the Atlantic Ocean and the eastern part of Europe and Africa. The observatories of Cornell, Vassar, Yale, Wesleyan, and Nantucket all lay near the central line of totality, so that it was possible for many astronomers to make observations with an unusual degree of convenience.

Across the United States the shadow of the moon traveled with great rapidity, as is always the case when the shadow strikes the earth's surface very obliquely, i.e., near sunrise or sunset. The rotational motion of the earth's surface is in the same direction as the motion of the moon's shadow and it thus reduces the velocity of the shadow past the observer. The eastward motion of the surface is slower, and the resultant velocity of the shadow consequently greater in high latitudes than near the equator. The entire stretch from Minnesota to Nantucket was traversed by the center of the shadow in about fourteen and three-quarters minutes. One hour and twenty-eight minutes later, the path of totality reached its abrupt end at sunset north of Scotland.

The duration of totality depends both upon the velocity of the shadow and upon its dimensions at the earth's surface. The circumstances of this eclipse were such that the duration of totality was relatively short, ranging, along the central line from Minnesota to Nantucket, from 83 seconds to 2 minutes and 7 seconds. In spite of the brevity of the eclipse, the small altitude of the sun, and the unreliability of New England weather, extensive preparations were made by many professional astronomers and numerous stations occupied near the central line. The *Los Angeles* was sent up by the Navy Department with a party of government astronomers, and airplanes were placed under the direction of other astronomers. While a cloudy sky brought disappointment to all those located from western New York State westward, nearly perfect atmospheric conditions prevailed, at the critical time, to the eastward, and results of great value were secured.

Public Interest.—A striking feature was the participation in its observation by the public. Any one near the boundary of the shadow, which lay through New York City, could, with a little instruction, make observations which would locate the boundary with great precision. Such observations would lead to a correction of the assumed position of the moon and add to our knowledge of its motion. The puzzling problem of the shadow bands might be solved from a large number of reports sent in by amateur observers; and a camera of any description could be usefully employed. A publicity committee was appointed by the American Astronomical Society to inform the public of what they might expect to see and of the observations which they might make. Newspaper cooperation, lectures and radio talks awakened a general interest and brought many offers of assistance.

On the morning of the eclipse airplanes started up carrying newspaper men, photographers and astronomers; trains arrived in the belt of totality with thousands of people from less favored regions; astronomers made a last inspection of their instruments; telegraph operators got ready to send and receive weather reports along the track; and business was suspended while everybody shivered in the keen winter air. Shortly before totality the so-called shadow bands came fluttering and quivering across the white snow; the slender crescent of the sun broke up into beads, and then was gone; the corona flashed out and the eclipse was on. The first reappearing bit of the sun was expanded by irradiation into a brilliant jewel set in the still continuous ring of the corona, and popular imagination coined the term, the Diamond Ring.

The scientific results accomplished far exceeded expectations. The times of contacts of the limbs of the sun and moon, photographs of the sun in the partial phases of the eclipse and the accurate delimitation of the shadow, in particular across New York City, provides material for the correction of the moon's place; photographs with cameras of various sizes during totality revealed the structure of the corona and the prominences; the photometric brightness, the radiation, the degree of polarization and the spectrum of the corona were all recorded during the few seconds of totality; photographs of the "flash spectrum," consisting of the bright lines radiated by the atmosphere of the sun were secured at the beginning and end of totality; the shadow bands, which were unusually conspicuous, were conclusively shown to result simply from the irregular transmission through the earth's atmosphere of the light from the slender remaining crescent of the sun, analogous, therefore, to the well-known phenomenon of star-twinkling. Other observations include the effect on magnetic and wireless conditions. A full account of the eclipse preparations, experiences and results may be found in the numbers of *Popular Astronomy*, from January on.

There were three other eclipses during the year: an annular eclipse of the sun in July, visible in the southern Pacific Ocean; and partial eclipses of the moon on February 8-9 and August 4.

Several eclipse expeditions started out in the summer on their long journey to Sumatra to observe the eclipse of January 14, 1926.

Comets.—The number of comet discoveries varies widely from year to year. The discovery of a new or unexpected comet involves patient sweeping of the sky, zone by zone, and the identification of numerous nebulæ which closely resemble comets. The search may be fruitless for months at a time and the observer have nothing to show (except the cultivation of patience and persistence) for his many nights' work. Very few observers continue their comet-seeking very long and the number of enthusiasts for this kind of observation is, in some years, very small.

Six new comets were discovered in 1925—the first three within a space of two weeks. The first (1925a) was found by Schain at Pulkovo on March 24, and a day later by Comas Sola at Barcelona; the second (1925b), on March 26, by Reid in South Africa; the third (1925c) by Orkisz at Cracow on April 4; the fourth (1925d), on November 17, by Van Biesbroeck at the Yerkes Observatory; the fifth (1925j) by Peltier and Wilk, November 13-19, and the sixth (1925k) by Ensor in South Africa, December 14. Schain's comet came to perihelion (the point nearest the sun) in September, at a distance from the sun of nearly 400 million miles. The perihelion distance is thus, apparently, even greater than that of the comet of 1729, which had hitherto held the record for perihelion distance. Comets of ordinary brightness are totally invisible at such a distance; this must be a very big comet to show up as an object of the eleventh magnitude. Reid's comet was comparatively bright and nearly reached the threshold of naked-eye observation in June. It passed perihelion in July, about 60 million miles outside the earth's orbit. It was then near the Southern Cross. Comet 1925c had just passed perihelion, at a distance of about 100 million miles from the sun, when discovered. At brightest it was about as bright as Reid's comet and had a short tail, but, with increasing distance, it faded rapidly. It traversed the northern constellations, passing, in June, within 8° of the pole. In addition to these unexpected appearances of comets, the returns of five periodic comets were observed with the aid of careful predictions of their places: Borrelly's comet was found by Schaumasse on August 14; Brook's, by Tscherny, on September 19; Wolf's (1884, III), by Stobbe, July 13; Tempel II, by Stobbe, June 11; and Faye's, by Baade, October 20. Two other comets, which have elliptical orbits, were due to return to the neighborhood of the sun during the year but they were not detected.

Mars.—Advantage was taken of the unusually favorable opposition of Mars in 1924 to gather some very interesting information concerning the planet which most readily excites our imagination. The October number of the *Pub. Astr. Soc. Pacific* contains some photographs (by Wright) of Mars, and of a view across the country from Mt. Hamilton, California. One pair of pictures was taken through a color screen, which allows only red light to reach the plate, another was taken in violet light. Of the photographs of Mars, the one in red light shows a wealth of detail of surface markings; the one in violet light, on the other hand, is of almost uniform appearance, with the exception of the polar cap, which is, relative to the other picture, very conspicuous. There is a similar difference in the terrestrial pictures: the atmosphere cuts off the violet light from the distant landscape, and, in violet light, nothing shows beyond the immediate foreground on the mountain top; in the other picture, taken in red light, the valley and the mountains beyond appear with great distinctness in detail. These facts, with other considerations, are suggestive of the existence on Mars of an atmosphere of considerable density. Wright considers that by photographing in red light we are able to penetrate through the atmosphere to the solid surface of Mars, while in violet light we secure only a picture of the atmosphere.

The radiometric measurements made at the Lowell and Mt. Wilson observatories tell us, at last, something about the temperature of Mars. Confidence in these observations is established by the facts that they show that there is more radiation from the equatorial than from the polar regions; more from the afternoon side (where the sun has been shining) than from the morning side; and that there was a gradual increase in radiation from the southern hemisphere with advancing summer. The interpretation of the results in terms of temperature involves, from a number of factors, considerable uncertainty, but reasonable assumptions indicate a temperature at noon on the equator of something like 10° C., and, therefore, well above the freezing point.

Nova Pictoris.—A bright nova in the southern constellation Pictor was discovered on May 25 by Watson, in South Africa. The story of the discovery has points of interest. Mr. Watson, who is an employee in the Postal and Telegraphic Department, was on his way to work a little before 6 A. M. when he noticed a bright star near α Pictoris which he did not recognize. On his return home for breakfast he looked up the star field in an atlas and found no bright star in that position. He felt sure that it was a nova and at once telegraphed to the Cape Observatory. The night of the 25th was clear and the astronomers at the observatory, by the prompt action of the discoverer, were able to obtain photographs of position, brightness, and spectrum of the nova at an early stage in its development. From the Cape the news was cabled to Copenhagen, whence, as usual, it was distributed all over the world to interested astronomers. Too far south for observation in the United States and Europe, it was persistently photographed and visually observed at the Cape Observatory, the Harvard station at Arequipa, Peru, and at the Observatory of La Plata, Argentina. Its former history was traced at the Harvard Observatory on plates taken at the southern station. It is apparently identical with a faint star which appears of constant magnitude 12.75 up to the end of 1924. Plates taken on January 4, 11 and 13, 1925, show no stars fainter than the eleventh magnitude and on these the star is not visible. On April 13, 1925, nearly two months before maximum light, the star was of the third magnitude. No photographs are available from then until the date of discovery. On May 25 the magnitude was 2.4. The brightness increased to magnitude 2.0 on June 4, to 1.5 on June 8, and reached its maximum, at magnitude 1.1, exceeded by that of only a few stars, on June 9. The increase in brightness was, thus, exceptionally slow. Most novæ make the entire rise in a few hours or days. The brightness decreased more rapidly than it increased, and, on the down grade, was subject to rapid and marked oscillations. While the changes in the spectrum followed, in general, the sequence peculiar to novæ, they, also, proceeded at a much more leisurely pace than usual.

The Interferometer.—The angular diameter of *o* Ceti (Mira, the Wonderful), at maximum brightness, in 1925, was successfully measured by Pease with the 2-foot interferometer attached to the 100-inch reflector of the Mt. Wilson Observatory. The angular diameter was found to be 0″.056, or about one-third greater than that of Betelgeuse, which, as will be remembered, was the first star measured with this instrument. In order to convert the angular diameter into linear diameter, the distance must be known. A very close companion of Mira renders the measurement of the distance rather uncertain, the photographic images of the two stars running together and making it difficult to bisect the image of Mira with a micrometer wire. The parallax is estimated as 0″.02. The linear diameter then comes out about 250 million miles, approximately the same as that of Betelgeuse, and considerably larger than that of the earth's orbit. Mira is a red giant of spectral type Me, and a long period variable. It was the first variable star discovered—by Fabricius in 1596—and its variations, from the second or even the first magnitude down to the eighth or ninth and up again in a period of 320 to 370 days, make it a very spectacular object. The presence of titanium oxide bands and of low temperature metallic lines indicate that it is a cool star. Also, Nicholson & Pettit's measures with the radiometer show that a large percentage of the radiation is heat. The irregularities in the period and range indicate that physical causes underlie the light variation. They suggest an accumulation of internal resistance to a point where there is a sudden release through an overlying resistance—perhaps in some measure analogous to the phenomena of sunspots.

The usefulness of the interferometer extends also to the measurement of double stars where the components are so close together as not to be readily separable with the eye. It has now been used with success in the observation of a spectroscopic binary. Mizar (ζ Ursæ Majoris) is a fine visual double. Pickering, in 1889, found that the spectral lines of the brighter component became alternately double and single and concluded that this component was itself double. From the method of discovery, such stars are known as spectroscopic binaries. The period of revolution of spectroscopic binary is about 20 days and 13 hours; the average distance between the two stars a little more than one-fifth an Astronomical Unit (the distance from the earth to the sun); and the distance of the system from the sun, 72 light years. The fact that Mizar is a member of the moving Ursa Major cluster has made it possible to determine the distance with considerable accuracy. By turning the interferometer beam carrying the two mirrors, as well as by varying the separation of the mirrors, Pease was able to find a position in which the fringes disappeared and thus to measure the direction of one star from the other and their apparent angular separation. The line of the stars changed its direction in four nights by 45°. It then became possible to deduce that the orbital plane is inclined 50° to the plane of the sky. The projected separation amounted to only one-eightieth of a second of arc—corresponding, however, at that distance to more than 25 million miles. A simple illustration will show what a big triumph this achievement is for the interferometer. The angular separation, which was measured, is the same as that of two lights one inch apart and observed from a distance of 250 miles.

Relativity.—Three reports of observations bearing on relativity have appeared. The first concerns the interference effects observed by Michelson and Gale between two beams of light travelling in opposite directions through a rectangular arrangement of pipes, 2,010 x 1,113 feet. The experiment was first tried in the open air but the interference fringes were too unsteady for accurate observation. The pipes were then laid with the joints carefully sealed, adjustable mirrors mounted at the corners, and the air exhausted to a pressure of one-half to one inch of mercury. The observed displacement agrees closely with that predicted as the effect of the rotation of the earth on the velocity of light both on the assumption of a fixed ether and in accordance with relativity.

D. C. Miller has carefully repeated at Mt. Wilson the famous Michelson and Morley experiment of dividing a beam of light into two parts and reflecting them back and forth over measured equal distances at right angles to each other. While the original experiment, made in Cleveland, near sea level, gave no evidence of a difference in time of transmission, the recent trial, at an altitude of about 1,700 meters, gives a positive result. Miller and Silberstein interpret this as meaning that the ether is gliding over the earth with a speed which varies from about zero at sea level to about six miles per second at the altitude of Mt. Wilson. Eddington contests this.

Finally, the work of Adams, on the spectrum of the companion of Sirius, has accorded additional evidence in support of relativity. According to this theory, a strong gravitational field slows down the atomic vibrations, with the result that the spectral lines from such a source are shifted relatively to lines produced in a weaker field, such as that of an arc light on the earth. Such a displacement, which Einstein pointed out to be one of the crucial tests, had already been reported by St. John in the spectrum of the sun. Sirius has a small companion star, invisible to the naked eye. In spite of its insignificant appearance, it must be nearly as massive as the sun, for it exerts a very considerable gravitational pull upon its brilliant companion. Its spectral type indicates that it is very hot and much brighter, area for area, than the sun. The low apparent brightness, then, must be attributed to small size. This conclusion leads to a value for density which is startlingly large and entirely inexplicable before Eddington's researches revealed the possibility that the atoms in the interior of a star, stripped of their electrons and reduced perhaps to one one-hundredth the size of terrestrial atoms, might be packed perhaps a million times more closely together before overcrowding causes the material to cease to act as a perfect gas. Eddington pointed out that surface gravity of this star should be such as to cause a shift of the lines about thirty times as great as the shift already detected in the spectrum of the sun. Adams photographed the spectrum with the great Mt. Wilson reflector and found the shift to be almost precisely as predicted, thus furnishing confirmation of Eddington's views and of the theory of relativity. This star, then, is only about 12,000 miles in diameter—slightly larger than the earth; its mass is nearly that of the sun, and its density over 50,000 times that of water. It is far denser than anything known on the earth: a pint of its substance would weigh twenty-five tons.

The Magellanic Clouds and the Spiral Nebulae.—The two Magellanic Clouds in the southern sky, looking like isolated patches of the Milky Way, have always excited much speculation. Their appearance alone justifies the conclusion that these apparently compact groupings are not due to a chance alignment of stars and nebulæ at very different distances from us, but, rather, that each Cloud is a physical system of stars all at very much the same enormous distance. Knowledge of the characteristics of any members of the system leads to valuable deductions concerning the entire cloud. These clouds contain a considerable number of stars which vary in brightness in a manner typified by the variation of the star δ Cephei. They are known as Cepheid variables. Miss Leavitt found, some twenty years ago, that in the Small Magellanic Cloud the brighter Cepheids have the longer periods of light variation; that, in fact, there exists an almost linear relation between apparent magnitude and logarithm of the period.

As these stars are, presumably, all at much the same distance, this relation becomes one between period and relative actual luminosity. The only thing lacking to make it possible to use this relation as a method of measuring great distances was a knowledge of the actual luminosity corresponding to a certain period. This difficulty was met by the determination of the distances of a considerable number of isolated Cepheids. Those of shortest period—from 3 to 24 hours—appear to be of median absolute magnitude (average of maximum and minimum brightness if at a distance of 10 parsecs) —0.2. They average about 100 times as bright as the sun. Cepheids of a mean period of seven days are about 700 times as luminous as the sun; while those of longest periods, forty days or over, appear to be as much as ten thousand times as bright as the sun. The development of the luminosity-period relation is largely due to Shapley, who has made use of it, on the assumption that Cepheids of a given period are much alike wherever found, in his determination of the distances and distribution of the globular clusters. The ingenuity and the powerfulness of this method of measuring distances far greater than those that can be determined by the methods of trigonometric measurement, parallactic motion and moving clusters, justifies the somewhat long outline which has been given.

To return: the parallax (the angle subtended at the object by the radius of the earth's orbit) of the Small Cloud is found to be about 0″.000032. The distance is thirty-one kiloparsecs, or about 101,000 light-years; that of the Large Cloud about 112,000. Now that the distance is known, the actual brightness of the stars and nebulæ may be determined from the apparent brightness, and the linear dimensions from the apparent (angular) dimensions. We can only briefly mention some of the more interesting results. They are subject to some corrections through the possible modification of some of the assumptions. The average angular diameter of the Small Cloud on photographs of twenty-three hours' exposure is 3°.6. The corresponding linear diameter is two kiloparsecs or sixty-five hundred light-years, which is equivalent to about fifty times the distance from the earth to the Hyades cluster in Taurus. The Large Cloud is more than twice as large. The Orion Nebula, which is visible to the naked eye, seems to be a very small affair compared with some of the gaseous nebulæ in the Clouds. The largest of all, 30 Doradus, would fill nearly the entire constellation of Orion.

At the distance of the Clouds, stars of the zero absolute magnitude (about 100 times as bright as the sun) are only of apparent magnitude seventeen and a half. It takes a telescope with a lens fully forty inches in diameter to show so faint a star. Many stars in the Clouds are much brighter than this. In the Small Cloud there are perhaps 300 stars brighter than absolute magnitude — 7, i.e., more than 55,000 times as bright as the sun—the brightest stars known; and about 260,000 stars brighter than absolute magnitude zero. The brightest stars are mainly red giants, the brightest variable stars having diameters of the order of 10^9 kilometers, and being, therefore, even larger than Betelgeuse and Antares. S Doradus, if, as seems probable, a member of the Large Cloud, must have a median absolute magnitude of —8.9 which makes it 600,000 times as bright as the sun. No other star of comparable brilliance is known unless it be one or two novæ at the crest of their outburst. The nebulæ in the Clouds are also very bright in comparison with those in other parts of the sky. This is to be expected on the theory that nebulæ are excited to radiation by neighboring stars.

Relations to Spiral Nebulae.—Shapley points out several suggestive comparisons between the Large Cloud and the spiral nebula Messier 33, the distance of which has recently been measured by Hubble (see below). Each contains one abnormally large and luminous gaseous nebula, comparable in size and brightness; the average diameter (4.3 kiloparsecs) of the Cloud is very closely the same as the greatest diameter (4.5 kiloparsecs) of the spiral; the integrated absolute magnitude of M 33 is approximately —15, while that of the Large Cloud lies between —15 and —17. The average diameter (15 parsecs) of the brighter star clusters in the Large Cloud is three times the average diameter (5 parsecs) of the hundreds of nuclei in M 33; the nebulæ in the Large Cloud, excluding 30 Doradus, average about 7 parsecs in diameter, and those in the Small Cloud about 5 parsecs. These two classes of objects in the Clouds average considerably brighter than do the secondary nuclei of the spiral. While it is difficult to trace any spiral structure in the Clouds, these analogies between the Clouds and a typical spiral nebula seem to Shapley to indicate that a study of the individual stars, clusters and nebulæ in the Magellanic Clouds is a valuable approach to the study of the far more distant spiral nebulæ.

The nature of the spiral nebulæ has long been a subject of animated discussion. They are exceedingly numerous—several hundred thousand are estimated to be within photographic reach of a 60-inch reflector with an hour's exposure—and they range in size from the mighty Andromeda nebula (Messier 31), which is visible to the naked eye, to tiny little specks on the photographic plate whose spiral structure is barely recognizable. In their distribution they avoid the region of the Milky Way and are particularly numerous near the north galactic pole. The radial velocities appear to be very large, and, with few exceptions, they are velocities of recession. Several have been found to be moving away from us at velocities greater than 1,000 km./sec. Rotation has been detected in some spirals by spectrographic observation of the outlying regions. Van Maanen, by comparison of plates taken at different times, has detected motion, during the interval, of many of the knots and condensations. Attempts to measure their distance by the ordinary method of triangulation have proved unsuccessful. Many faint novæ have appeared in the Andromeda Nebula during the past few years when careful watch for them has been kept. A rough estimate of the distance of the nebula can be made on the assumption that such novæ are comparable in actual brightness with the novæ which appear in the Milky Way. Such estimates run as high as a half-million light-years.

It is apparent that the whole question, whether a spiral nebula is an "island universe" composed of millions of stars, clusters, and nebulæ, or some kind of an aggregation of moderate size, hinges on the question of distance. Added to the puzzling evidence was the fact that these objects have a nebulous appearance, which no one had been able to resolve into discrete star-like images. One-half of the annual prize for noteworthy contributions to science was awarded at the Washington meeting of the A. A. A. S. to Hubble, of the Mt. Wilson Observatory, for a paper entitled "Cepheids in Spiral Nebulæ." With the two large reflectors he has been able to resolve, photographically, the hazy outer regions of the Andromeda Nebula (M 31) and of M 33, in Triangulum, into dense swarms of images in no way differing from ordinary star images. A long series of plates furnishes evidence that there are many stars which have a typical Cepheid type of light variation. Owing to the extreme faintness of the stars at minimum light, it proved advisable to apply the period-luminosity law, developed by Shapley (see above), to maximum brightness. The small dispersion of the results showed that this procedure was justified. The distances of both nebulæ are found to be 285,000 parsecs, or 930,000 light years! Variables have been found in several other spirals, but not enough plates have yet been collected for their study. The spiral nebulæ, or at least some of them, then, are vast systems far outside the galactic system. Whether they are all very much alike, and those that appear very small are many times as far away as the Andromeda Nebula, we still have no way of knowing. The diverse appearance of the larger ones indicates that they do differ markedly in size and density.

Atomic Theory and Stellar Constitution.—The recent developments in atomic theory have proved of enormous importance to astronomy, in the interpretation of solar and stellar spectra. It now appears that each spectral line is to be attributed to emission (or absorption) taking place in connection with the transition of an atom (or molecule) from one definite, specifiable state to another, and that the number of light-waves per second is exactly proportional to the change in energy. A great deal of work has been done on the spectra of many elements, such that the changes of state corresponding to nearly all important lines in stellar spectra are now understood.

In the atmospheres of the relatively cool stars, the atoms are nearly all at the lowest energy level and are capable of absorbing certain lines, but not all. At higher temperatures a larger number of atoms are in higher states, and, in their transitions, are capable of absorbing a different set of lines. The latter are conspicuous at the temperature of the electric arc, while the former are prominent in spectra produced in the electric furnace at low temperature. Their characteristic strengthening in sun-spots, which was attributed years ago to the lower temperature of sun-spots, now finds complete physical explanation. The low temperature lines of the unexcited atoms are also strong in the spectra of the coolest stars.

The atom, if sufficiently excited, loses one electron, becoming an ionized atom characterized by new energy states and capable of absorbing or emitting entirely different sets of lines. Such lines have long been known as enhanced lines. They are produced at the high temperatures of the spark, some appearing with less excitation, others requiring more. When more than one electron has been removed, the lines are usually far in the ultra-violet and entirely inaccessible in stellar spectra, but certain elements, such as Silicon, give lines, in several successive stages of ionization, which lie in the visible spectrum.

In the atmospheres of stars, ionization is favored both by high temperature, tending to make the electrons fly off, and by low pressure, diminishing the opportunity for an ionized atom to pick up an electron.

In the sun's atmosphere, at temperatures of 5,000° to 6,000°, the elements of easy ionization are almost completely ionized. In the extreme cases of Lithium and Rhubidium the lines do not show at all in the ordinary solar spectrum, but they do appear in the spot spectrum, where the lower temperature permits some neutral atoms to exist. In general, the arc lines (neutral atom) tend to be strengthened in spot spectra, while the enhanced lines (ionized atom) tend to be weakened. Almost every detail of the difference between the spectrum of sun-spots and that of the rest of the sun can now be explained.

In the upper atmosphere (the chromosphere) of the sun, the pressure is much less than it is in the lower atmosphere. There are, therefore, fewer neutral and more ionized atoms there: the enhanced lines are relatively strong in spite of the lower temperature. Thus simply is explained a phenomenon which has been very puzzling for generations. This explanation receives additional support from recent studies of the pressure in the sun's atmosphere and its opacity. Where the gas of the sun's atmosphere has a density as great as one one-thousandth that of ordinary air, various processes render it slightly opaque or hazy and there the sun, although purely gaseous, appears to have a surface (called the photosphere), revealing definite markings corresponding to the hotter and cooler regions. Stewart and Russell estimate that a pressure of one one-hundredth of an atmosphere is sufficient to produce this effect. Milne, from additional evidence, makes it one ten-thousandth. According to the latter figure, the whole quantity of gas in the sun's atmosphere above the photosphere appears to be no greater than that in a layer of air only a few inches thick. Laboratory evidence, also, is to the effect that this quantity of material is abundantly sufficient to absorb spectral lines. Since the sun's atmosphere (the chromosphere) is several hundred miles in depth, its density must be excessively small. There is good evidence that radiation pressure nearly neutralizes solar gravity in the chromosphere and permits of this considerable depth.

Spectra of Stars.—The same principles applied to the spectra of stars and with equally suggestive results. Take, for example, the spectrum of Silicon, the atom of which in its neutral state, has four electrons outside the "complete shell"; the lines due to neutral Silicon appear in the spectra of the sun and of the stars which are known to have a low temperature; those due to Si+ (Silicon atoms which have lost one electron) are observed in stars like Sirius; still hotter stars show the lines of atoms which have lost two electrons; and in the very hottest stars is found evidence of Silicon atoms which have lost three. In general, the hotter stars show the lines of ionized atoms. The lines of metals appear at lower temperatures than do those of the permanent gases, such as Oxygen and Nitrogen, which are harder to ionize. As the temperatures can be found from the color of the stars and from the distribution of their radiation, it is possible, since the degree of ionization also depends upon pressure, to use the observational data concerning line intensities to determine the pressure in stellar atmospheres. Miss Payne finds that the pressures range from one ten-thousandth of an atmosphere in the lower layers to about one-millionth of an atmosphere in the upper layers. The stars are pretty sharply divided into "giants," of low density, enormous size and great luminosity, and "dwarfs," which are relatively more dense, smaller and not so bright. The giant stars, with their comparatively low density and small force of gravity at the surface, are believed to have much less dense atmospheres than the dwarfs possess. This difference may readily account for the greater strength, in the giants, of certain enhanced lines and, in the dwarfs, of certain lines of neutral atoms, and thus give physical meaning to the method devised by Adams some years ago to determine, from the relative strength of certain lines in their spectra, the absolute brightness of stars and hence, by comparison with their apparent brightness, the distance.

We have also advanced far toward an understanding of the conditions which prevail in the deep interior of a star. Here ionization must be much more nearly complete, many of the atoms being stripped down to bare nuclei, which, together with the free electrons, form a mixture of so low a mean molecular weight, that, in spite of the great pressure, it behaves as a gas. Equilibrium in the stars is thought to be of the radiation type—the change in temperature from point to point is determined from the rate at which heat flows out to the surface. It has now become possible to calculate the opacity (roughly, the resistance to the flow of heat) of the material, and so to develop a theory of the internal condition of the stars.

Eddington and Jeans, while disagreeing on certain technical matters, agree in concluding that the brightness should depend mainly on the total mass and relatively little on the surface temperature of the star—a conclusion which is in excellent agreement with observation. The theory predicts the relative brightness of stars with satisfactory accuracy, but gives too high an absolute brightness. This disagreement between theory and fact may be removed by further work. According to Eddington, the density at the center is about twenty times the mean density throughout the star, and the central temperature ranges from about one million degrees centigrade for the huge red stars, such as Antares, to about thirty million for a large proportion of the stars, of very different characteristics, such as the Orion stars, Sirius, the Sun and the faint red stars typified by 61 Cygni. The white dwarfs, such as the companion of Sirius (see later) probably have central temperatures of more than one hundred million degrees.

Evolution of the Stars.—These results cause modification of the older theory (*Year Book*, 1914, p. 590) of stellar evolution; in particular they necessitate the abandonment of the assumption of a fall in the internal temperature in the denser dwarf stars in consequence of the close-packing of the atoms. There is now reason to ascribe the low surface temperature of these stars, not to a low central temperature, but to the greater opacity with greater density, which prevents the heat from leaking out to the surface. There is good geological evidence that the radiation of the sun has changed very little in the past billion years. The life of a star must be many times as long. The secret of the maintenance of radiation throughout this great length of time appears to lie in the equivalence of matter and energy. Present investigators are agreed that a consistent theory of stellar evolution can only be built up by assuming that a very considerable part of the material of a star is gradually transformed into energy and radiated away into space.

Russell finds it necessary to conclude that rate of transformation of matter depends upon the temperature. He suggests that at some critical temperature, in the neighborhood of a million degrees, the degradation of some form of matter begins, thus supplying the radiation of the giant stars of large diameter and low central temperature; that at a temperature of about thirty million degrees processes come into play which start the gradual transformation into heat of the main mass of the star. During this part of its evolution the star maintains a nearly constant central temperature, steadily decreases in mass, increases in density and opaqueness and passes down the main sequence represented by Sirius, the Sun and the small faint red stars. Finally, the white dwarfs, such as the companion of Sirius, may be brought into the orderly sequence of evolution by the assumption that, after the transformation of the main mass, there remains only a highly refractory material which is only transformable at still higher temperatures. If, after the transformation of the main mass, the star is still of considerable size, it continues to contract to greater density, grows hotter and brighter until this final transformation sets in. In such discussions the use of familiar measures of time involves numbers which are inconveniently large. Smart suggests the use of the "Cosmogonic Unit" of 7.7×10^{12} years, which he finds to be the interval required for a star to pass from an infinitely large mass to the present-day mass of the sun. The life history of a star probably extends over a large number of these units.

SELECT REFERENCES ON ASTRONOMY

The following list includes books that were published previous to the present year, but which are still the most recent in their fields. The most recent material of all is to be found, of course, in the journals: such as the *Astrophysical Journal;* the Publications of the Astron. Soc. of the Pacific; Monthly Notices of the Royal Astron. Soc., and *Astronomische Nachrichten.*

Jones, H. Spencer, *General Astronomy.* (N. Y., Longmans, Green, 1922.)—The most recent book covering the general field of astronomy. A satisfactory textbook for the college student and a book that, in its exclusion of mathematics, is pleasant reading for the amateur.

PHILLIPS, Rev. T. E. R., and STEAVENSON, Dr. W. H., assisted by others, *The Splendour of the Heavens.* (2 Vols., London, Hutchinson, 1923.)—These two volumes were brought out in twenty-four fortnightly parts written by various authorities. A popular book of descriptive astronomy. Over 1,000 illustrations, averaging more than a picture to a page. Of particular value to those who give popular lectures.

LEWIS, Isabel M., *A Hand-Book of Solar Eclipses.* (N. Y., Duffield, 1924.)—A book of 118 pages dealing with the phenomena of total eclipses of the sun and evidently timed to meet the popular interest excited by the eclipse of January 24, 1925.

DINGLE, Herbert, *Modern Astrophysics.* (London, Collins Sons, 1924.) —An up-to-date account of modern astrophysical discoveries and theories. In the preface the author says: "While the popular appeal has been given first place, difficulties have not been evaded. It has been assumed here that the reader is prepared to think. No specialized knowledge is required."

MITCHELL, S. A., *Eclipses of the Sun.* (2d ed., N. Y., Columbia University Press, 1924.)—An account of the observation of eclipses; what they have contributed to our knowledge of the constitution of the sun; the eclipse test of relativity; and what remains to be done in the future. It is very well illustrated, and many of the experiences of the author on eclipse expeditions in which he took part are interestingly recounted.

OLIVIER, Charles P., *Meteors.* (Baltimore, Williams and Wilkins Co., 1925.)—A general work on meteoric astronomy written by the leading authority on meteors in this country. Detailed methods of observation and computation are given and the results discussed. The literature of the subject is thoroughly reviewed. The author's own opinions are frankly stated.

RIGGE, William F., *The Graphic Construction of Eclipses and Occultations.* (Chicago, Loyola University Press, 1924.)—The author has long been interested in the representation, by graphs, of the circumstances of eclipses. Many of his diagrams have appeared in *Popular Astronomy.* There are also chapters on graphic methods of determining the times of rising of the sun, moon and stars, and hints on drawing and computing.

PAYNE, Cecilia H., *Stellar Atmospheres.* (Cambridge, Harvard College Observatory, 1925.)—The first of a series of research monographs to be issued from the Harvard Observatory. An analysis of stellar atmospheres by means of modern theories of atomic structure and ionization. Necessarily technical.

JEFFREYS, Harold, *The Earth: Its Origin, History, and Physical Constitution.* (Cambridge University Press, 1924.)—The content of this scholarly work is perhaps sufficiently indicated by the title. One reviewer says: "*The Earth* is emphatically not a book to be read through from cover to cover as one would read an essay. Nor is this, even principally, due to the mathematics which enters into it, for the text is full of close reasoning. We take it to be a compliment to a book to say that the digestion of it should only be undertaken in doses, and these when the mental state is pretty vigorous."

DIVISION XXIX
ENGINEERING AND CONSTRUCTION

CIVIL ENGINEERING

By John M. Goodell
Civil Engineer, New York

Steel Bridges.—The outstanding feature of the steel-bridge field in 1925 has been the highly technical matter of the loads which it is safe to place on existing bridges. Almost as interesting although not so important from an engineering viewpoint has been the unexpected revival of the determination of the better public policy, tolls or bonds, in financing very expensive bridge projects, a subject which was believed to have been settled in favor of bonds, until very recently, for all public bridges.

Stresses on Railway Bridges.—The safe loading of railway bridges seems to be easily settled. They have all been designed by experts using approved unit stresses for their tension members, columns and other parts. Nominally, their safe load is that for which they were designed. Railway engineers are human, however, with a strong desire to have a substantial anchor to windward in matters where trouble may arise. They knew by experience that getting appropriations for heavier bridges from their directors is far from easy. They have also known for a long time that the standard unit stresses for structural steel, adopted when the material was less uniform and reliable than it is to day, were very low, but they have said nothing. These low unit stresses used in their designs were their safeguard when operating officials insisted on loading bridges beyond their nominal capacity and directors could not see how to spare money for stronger bridges.

In 1922, however, the subject of unit stresses in steel for buildings became so important that the American Society of Civil Engineers appointed a committee to investigate it. The committee reported in January, 1925, and this report is still, at the close of the year, a subject of animated discussion. So far as it relates to bridges, the conclusion reached from a consideration of the experience with existing bridges was that an increase in working unit stresses is justified, provided the steel is of standard quality, the designing is properly done and the workmanship is good. This conclusion has, naturally, drawn attention to the determination of the actual strength of old bridges, and in December the public discussion of the subject was started with a highly technical paper presented to the American Society of Civil Engineers.

Toll Bridges.—Turning to public toll bridges, the other major subject in the field of steel bridges, the public seems now to be where it was about forty years ago, floundering in uncertainty. Then, as now, there was a feeling that the only way in which money could be raised for very costly bridges was to meet at least a part of their cost by tolls, much as such charges were disliked. During later years tolls became so unpopular for public bridges that they were repealed quite generally. Since the World War, with all the demands for public works, tolls have again become fairly common. The suspension bridge across the Hudson River was built by a private company and tolls are charged for using it, but it is safe to say that had the New York Highway Department had funds for this structure it, also, would have made the Bear Mountain bridge a toll bridge. The Delaware River bridge between Philadelphia and Camden was made a toll bridge by the acts of the legislatures of New Jersey and Pennsylvania authorizing the building of the structure. The governor of Pennsylvania has recently insisted that the bridge shall be free when it is opened in 1926 and his controversy with the New Jersey authorities on this subject was proceeding briskly when 1925 ended.

The question involved is the very old one of whether one of these large structures is of sufficient importance to a whole community to pay for it by a bond issue, or is only useful to those who pass over it and are accordingly charged tolls for the privilege. With a bond issue, all taxpayers contribute annually to pay the interest, sinking fund and maintenance charges. With tolls, only those using the bridge pay any of the charges.

The mixture of opinion on the subject is shown by the condition of interborough communication in New York. The Brooklyn bridge was operated as a toll structure for many years, but it was finally made free on the ground that it was essential to the welfare of all Manhattan and Brooklyn. This policy was followed with the later bridges between Manhattan and Long Island. On the other hand, Manhattan is connected with the Borough of Richmond (Staten Island) by a ferry, formerly privately owned but now operated by the city, on which fares have always been charged, even under the city's control, although it serves exactly the same purpose as the four free public bridges over the East River.

Bridge Projects.—Few bridges of even moderate importance were completed in 1925. The Delaware River bridge, already mentioned, had its last wires for the cables put in place in January and the stiffening trusses were closed in May. It is a suspension structure with a main span of 1,750 ft. and side spans of 719 ft., being longer than any of the East River bridges at New York. It was the longest span under construction in 1925. About eighteen miles north of Oakland, Calif., another large bridge is under construction across Carquinez Strait, an arm of San Francisco Bay, by the American Toll Bridge Co. It has two 1,100-ft. cantilever spans, a central tower span of 150 ft., and two 500-ft. anchor spans, with a viaduct 1,152 ft. long at one end.

Several important bridge projects made a start during the year. The most important is the so-called Strauss project, tentatively approved during 1925, for a bridge crossing the Golden Gate at San Francisco with a 4,000-ft. main span 200 ft. above the water level and two 1,345-ft. approach spans.

The legislatures of New York and New Jersey have appropriated funds for a preliminary study by the Port of New York Authority for a bridge across the Hudson River from a point between 170th and 185th Streets, Manhattan, to Fort Lee, N. J. No information about the proposed structure has been made public as yet, but its magnitude is evident from the fact that an unofficial study of a bridge at this site called for a center span of 3,400 ft.

Contracts were let during the year for a large part of the work on the Montreal bridge across the St. Lawrence. It will have a cantilever span of 1,097 ft. and a long steel approach on the south side.

Construction was begun on a structure interesting from an artistic viewpoint, although its main span is only 670 ft. long. This is the new Point Bridge at Pittsburgh. The lower chord will be curved upward strongly, giving the structure, which is a cantilever, an attractive arch-like appearance. So far as artistic effect is concerned, however, the Arlington Memorial Bridge across the Potomac River at Washington is considered likely to be one of the most notable examples of what engineers and architects working together can accomplish. Congress appropriated $14,000,000 for the structure and work on the plans was begun in 1925.

A contract for the steelwork, 8,750

tons, for the Peace Bridge across the Niagara River between Buffalo and Fort Erie, Ont., was placed in November. This will be an important international structure.

Steel Buildings.—While there were no notably novel steel buildings constructed in 1925, structural steel has witnessed two important developments. One is a controversy over unit stresses in steel in buildings and the other an enforced change in detailing due to the zoning laws in some cities.

In January, a committee of the American Society of Civil Engineers reported that the unit stresses permitted for steel by the building laws of many cities were too low. These stresses have been based for many years on 16,000 lbs. per square inch in tension and bending, although a few cities recently raised that limit to 18,000 lbs. Many industrial buildings in places where they were not subject to building-code requirements have been designed of late on the basis of 18,000 to 22,000 lbs. Examinations of these structures by the committee showed that their behavior in service was satisfactory. Much older structures which, owing to imperfect assumptions in their design, have been in service with unit stresses up to 20,000 lbs. for many years showed similarly satisfactory behavior. A quarter century of progress in steel making, concurrent developments in steel design and long experience with structures stressed beyond the 16,000-lb. limit fixed in most building codes, all indicate that this limit throws an unnecessary hardship on those paying for such buildings.

While the committee found no evidence that any of the instances of faulty performance of steel in buildings was due to high working stresses, it admitted that other faults had occurred and attributed them mainly to unskillful design of the general structural system, crude details and insufficiency of bracing. In other words, poor engineering rather than poor materials was held responsible for such troubles as have been found. The use of low unit stresses, the committee believed, was no assurance that lack of skill in designing or poor workmanship or both will not result in defective structures. Further, the committee reported that engineering knowledge is now so advanced that future loadings can be much more accurately determined than formerly, and it is unnecessary to employ low unit stresses in order to provide for unexpected loads that may occur later.

Factor of Safety.—The progress of engineering is well illustrated by the gradual dropping of the term "factor of safety" in steel design. About the time 16,000 lbs. was adopted as the standard unit stress for steel, such a stress was based on the ultimate strength of steel, the smallest load which causes complete failure. Since that date, some twenty-five years ago, there has been a gradual change toward considering the elastic limit, or load at which steel first becomes permanently distorted, as its most significant property and to compare working stresses with it.

The ultimate strength of acceptable structural steel is 55,000 to 65,000 lbs. and its elastic limit is at least half of the ultimate strength, in no case being less than 30,000 lbs. Years ago it was the general practice to divide the ultimate strength by four or some other number, which was called the "factor of safety," to obtain the safe working stress for the steel then used. At that time this factor was an insurance against ignorance, poor design and inferior materials. But testing technic, engineering knowledge and steel making have all progressed since then; and today the competent engineer has little use for ultimate strength except as a general check on the properties of the materials he uses. There is no longer any need for factors of safety, therefore, and instead the engineer fixes his unit stresses on the elastic limit, which averages 36,500 lbs., with very few samples below 32,000 lbs.

The problem is to determine what percentage of the elastic limit shall be taken as the working stress. The records of tests of about six thousand heats of steel indicate to the committee that a very conservative estimate of the elastic limit would be 30,000 lbs. In other words structural steel will not suffer until it is loaded with 30,000 lbs. per square inch in tension. Provision must be made, however, for loads due to excessive crowds, the vibration of machinery and wind pressure during gales. These occur only occasionally and it is difficult to calculate the secondary stresses due to the distortion they cause. But experience with existing structures satisfies the committee that perfect safety is assured if two-thirds of their conservative assumption of the elastic limit is taken as the safe working stress. In other words, structural steel can be used to carry a load of 20,000 lbs. in tension with complete assurance that there is a margin of strength adequate to take care of any rare, unexpected loads which may or may not be imposed on the structure.

Assumptions concerning the safe working stresses in columns are on a somewhat different basis than those regarding stresses in tension, because knowledge of the behavior of steel structural members under compression is not so definite as is the case with tension. A special committee of the American Society of Civil Engineers has been working for some years to gain more information on the subject, and until its final report is made it is believed that a unit working stress of 16,000 lbs. is permissible for columns having a ratio of length to radius of gyration (l/r) of less than 50. For longer columns, it is recommended that the working stress be taken as 16,000—80 E, where E is the excess of l/r above 50.

Building Codes.—The public discussion of this report during 1925 indicated little difference of opinion with its recommendations provided the engineering and inspection are in competent hands. There is an apprehension among some structural engineers, however, that trouble may arise through the use of poor untested steel such as reached the country in 1925 from Europe, through changes in the method of determining the elastic limit, and particularly through poor engineering and workmanship. For this reason these cautious critics believe the committee should have been satisfied to recommend 18,000 lbs. for tension and bending and 15,000 lbs. for short columns for the present.

These critics are really endeavoring to strengthen the police powers of our communities, as codified in building regulations and laws requiring the registration of architects and engineers, by making it illegal for competent engineers to serve their clients most economically, because precedents may thus be made which incompetent engineers will employ dangerously. Building codes are troublesome things to draft satisfactorily, and even more difficult to enforce. A special committee appointed by Secretary Hoover has been endeavoring since 1921 to prepare a model building code, but only tentative drafts have been put out as yet. It is not intended to recommend a uniform building law for use throughout the country; indeed, specialists in the subject seem to consider such an endeavor both undesirable and impracticable. What the committee is aiming to furnish is a model upon which a code suitable for any city can be fashioned.

The real issue involved, which has not yet been discussed except informally, is whether it is good public policy to permit competent engineers to use working stresses which are admittedly safe in their hands or to compel them by law to use lower stresses, increasing thereby the cost of buildings to owners, in the hope that incompetent engineers and poor workmen who succeed in carrying on their callings in spite of building codes and registration laws will have fewer opportunities to erect dangerous steel buildings.

Set-back Building System.—The effect of some zoning laws on high building construction is due to their requirement that after a building reaches a specified height its outside walls must be stepped back, so as to give more space through which sunlight will reach the streets and other areas below. Prior to the passage of such laws, the exterior walls were carried up continuously, from bottom to top, with only such modifications as the taste of architect and owner introduced. In such buildings it was endeavored to make the columns continuous from their foundations to the roof, not only on account of the economy of such construction but also because of the facility with which bracing could be provided to meet the stresses caused by wind loads, the vibration of machinery and such special loads.

Setting back the outside walls in conformity with zoning laws, as shown in the new building of the New York Telephone Co. in New York, introduces special problems in foundation loads, column loads and girders. They can all be solved by the application of well-established engineering knowledge, but they have been so unusual in building design heretofore that the rapid and sudden increase in their number has caused surprise in cities where this result of zoning laws is now just becoming evident.

Notable Steel Buildings.—Of the recent steel buildings, probably the telephone building just mentioned is the most interesting. The technical needs of a great telephone exchange placed a number of unusual requirements on the architects and engineers. Official information about them was not given out in 1925, as the building was not ready for occupancy in that year.

Another steel structure that is unusual is the Tribune Tower Building in Chicago, rising thirty-four stories above the level of Michigan Avenue and descending six stories below it. The very strong wind bracing of the steel frame is an unusual feature.

Plain and Reinforced Concrete.—During 1925 the most interesting item in the field of plain and reinforced concrete was the discussion of the report of the Joint Committee on Standard Specifications for Concrete and Reinforced Concrete. The committee was formed in 1919 by delegates from the American Society of Civil Engineers, American Society for Testing Materials, American Railway Engineering Association, American Concrete Institute and Portland Cement Association. In 1921 it submitted to these societies a tentative report which was discussed for about two years. During this period investigations were made by the committee to determine whether various procedures they specified were entirely practicable in the field. A final report was made in August, 1924, and this has since been under discussion. When the report was submitted the committee had twenty-three members, all prominent for years in some branch of cement or concrete work. There was no dissenting vote on the adoption of the report but one member refrained from voting.

In spite of the long time spent in the preparation of this document, the standing of those who prepared it and its practically unanimous approval by the committee, it is being criticized by other specialists, generally on the ground that it is difficult to understand just what some of the clauses require. This is not surprising when it is recalled that concrete is the only building material in general use which is manufactured on the site, not in shops; and reinforced concrete is still so youthful that a description of certain details may be perfectly clear to one set of specialists familiar with them and still be far less clear to other specialists without that familiarity.

Varieties of Concrete.—Another characteristic of the concrete field in 1925 was the marked extension of recognition by both engineers and contractors of the practicability and necessity of controlling the quality of concrete for different classes of work. For several years the Structural Materials Laboratory at Lewis Institute, in Chicago, and the U. S. Bureau of Standards have been publishing information on this subject; 1925 saw this information widely applied for the first time on many kinds of work. The adoption of the inundation method of measuring sand should be mentioned particularly, because it was in 1925 that it was first extensively used although it was brought out several years earlier. Another significant feature of the year's work was the rapid increase in favor of the use of pre-mixed concrete, and a considerable number of plants to produce this material were built.

So much concrete work has been done for several years under rigid inspection and in the face of increasing severity of competition that a larger number of skilled workers in concrete are now available than ever before. Largely as a result of this, there has been a decided decrease in the seasonal character of concrete construction and a marked increase in the speed of work. For example, the Bradley Apartments on Cedar Street, Chicago, a twelve-story structure, had the frame placed in one month.

The decorative possibilities of concrete are gradually being recognized by architects and during 1925 some interesting examples of this were produced, particularly the Parthenon at Nashville and the new buildings of the Louisiana State University.

Notable Concrete Structures.—The scientific side of concrete construction in 1925 is mainly noteworthy for the gratifying progress in the projected construction and testing in various ways of a large multiple-arch dam in California. The proposed tests will be of progressively increasing severity until the structure is destroyed. They are being worked out carefully, for this will be one of the most expensive and elaborate full-size tests in the history of engineering.

Of the structures finished or substantially finished in 1925 mention may be made of the following:

The Chicago Produce Market comprises six blocks of three-story and basement buildings, each block 82 ft. deep and varying from 576 to 813 ft. in length. The contract was let in January, 1925. The first building was completed within six months and all of them within nine months.

The Northern Ontario Building in Toronto, Ontario, sixteen stories high, said to be the highest building in the British Empire, although this assertion seems exaggerated in view of the height, 360 ft., of St. Paul's in London.

The Pittsburgh University Stadium of elliptical shape with the long axis 791 ft. and the short axis 607 ft. will seat 70,000 persons. It is built on a hillside. Many of the seats are reinforced concrete slabs resting on the ground and the remainder are much lighter slabs carried by steel framework. The daughter of the chief engineer acted as the architect for this structure, being a graduate in architectural engineering of the Ohio State University.

The double-deck street work on South Water Street, Chicago, will closely approach those ideals of transportation enthusiasts who wish to have roadways and sidewalks tiered one above the other on the same right-of-way. It is being executed largely in reinforced concrete.

The bridges of reinforced concrete substantially built in 1925 include the very attractive Fort Snelling-Mendota bridge near Minneapolis, with beautiful concrete arches, and the Four-Mile Causeway at Miami, Fla., with fifty-five girders having a graceful arch effect.

ELECTRICAL ENGINEERING

By Charles W. Weyl

Moore School of Electrical Engineering, University of Pennsylvania

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GROWTH AND TENDENCIES

General Conditions.—The electrical industry has had an excellent year. The electric power demand of the country continues to increase at a rate which requires doubling of the power supply every five years. It is interesting to note, that due to improved economies, the cost of electricity to the consumer has decreased over 8 per cent. since 1914 despite a 20 per cent. increase in central station wages. Compare this, for example, with the 74 per cent. increase in clothing costs and the 42 per cent. increase in the cost of foodstuffs, over the same period. During the last year the average cost of electrical machinery has remained the same. Enormous increases in efficiency have been made in recent years, due in part to the use of larger units, cheaper fuels, increased thermal efficiencies, improvement of load factors by interconnections and other means, and by the rigid enforcement of the power factor clause.

Hydroelectric development has been slow in the past year, and although there are still some millions of undeveloped water horse-power in the United States, it is interesting to note that, if the entire available water power supply in this country were utilized, it would furnish less than half of the present total power demand. It is predicted that a rapid development of Muscle Shoals by private interests will take place. There has been much argument in recent years concerning super-power. These projects have, however, become so involved in political intrigue that both capitalists and engineers have preferred not to concern themselves actively with them.

The various technical societies are carrying on their important activities, and this year a new edition of the American Institute of Electrical Engineers Standards is being issued, involving a complete change in the form of publication, and many changes and additions in the subject matter. Possibly the most important addition is to be found in the classification of the usual operating conditions of machinery as well as standard test conditions, since the user of electrical machinery is more interested in the comparative performance of the machinery under operating conditions than under the special conditions of test.

Research Laboratories.—Since the war the development of the thermionic vacuum tube has been extraordinary. Even outside of the field of communication its uses are manifold. As a result of the perfection of the photo-electric cell and the electric filter, new apparatus and methods such as the Audiometer, Telephotography and many others described in the following report are now available. All of the large electrical manufacturing companies and many of the smaller organizations are maintaining excellent research laboratories. Most engineers are now of the opinion that industrial supremacy will in the future lie with those companies who realize the importance of their research departments. It is further interesting to note that in some of the largest industrial laboratories, a large proportion of the research is on pure science, without thought of direct commercial application. In the past year or two there has been an almost complete change in policy with respect to the findings in commercial laboratories. Whereas in the past, such material was kept as the confidential property of the company, now a very large part of the new scientific discoveries are made available to the entire profession. The United States Bureau of Standards continues its excellent work of research, standardization and coördination.

POWER

Status.—More power is produced in the United States than elsewhere in the world. The aggregate capitalization of the power industry in the United States was $6,600,000,000 as of January 1, 1925, compared with $5,800,000,000 in January, 1924. The gross annual revenue of the central station industry for 1925 is estimated at $1,500,000,000. It is estimated that the total energy output developed by power and lighting central stations will reach 60,000,000,000 kw.-hrs. this year. In May, for example, the total generation was 4,808,333,000 kw.-hrs. which showed an increase nearly 8.9 per cent. over May, 1924.

At the present time the capacity of stationary power generating units in the United States is approximately 50,000,000 horse power, of which 10,000,000 horse power is produced by water power. Approximately 90 per cent. of the population of the United States is supplied with electric service. It is further estimated that there are 350,000 employees in the power and light industry. January 1, 1925 showed that there were 16,555,714 light and power customers which indicated an increase of 2,178,283 customers during 1924, of which over 1,700,000 were domestic lighting, approximately 300,000 commercial lighting customers and 63,000 power customers.

Light and Power.—The United States Census Bureau, in a recent census of manufacturers embracing more than 275,000 industrial plants in this country, found that the combined cost for maximum power and fuel for heat used in manufacturing processes averaged 2.8 per cent. of the cost of the finished product. Records show that the United States has approximately 5,900 electric light and power companies. The privately owned systems serve nearly 16,000 communities and the publicly owned plants serve 3,000. The distribution of central stations according to output is as follows: stations of more than 50,000 kv-a; 95 in 1924—85 in 1922; 68 in 1924—and 44 in 1922; stations under 25,000 but over 500 kv-a; in 1924 3,073, and 2,321 in 1922. Practically 70 per cent. of the total power generated in central stations is generated by stations having more than 50,000 kv-a rating. Most of the large stations are found in the east north central states and the small stations in the west north central states.

Inter-Company Business. — There has been a great increase in inter-connections between power companies. The last two years has shown a 26 per cent. increase in inter-company business in this country. In the third Paris Conference on high-tension systems held in June this year, inter-connections of central stations and systems was one of the most discussed questions. In this country there have been some interesting applications of inter-connection between systems having different frequencies, and in one instance a 40,000 kw. frequency-converter was installed, inter-connecting a 25 and a 60 cycle system. This unit is controlled by what is known as the Scherbius load regulator and shows an over-all efficiency of 96 per cent.

Cost and Efficiency.—It is interesting to note the change in the cost of central stations between 1914 and 1925. The average cost per kw. was $60 immediately preceding the war as against $115 at the present time. A remarkable gain of 20 per cent. in thermal efficiency realized in the last year was due to air-heaters, reheating, stage bleeding, water-cooled furnaces and pulverized fuel equipment. It is important to note that very little improvement in efficiency has been made in transmission and distribution and that more than 30 per cent. of the total energy is lost in such systems. On the average, fuel cost represents about 30 per cent. of the switchboard energy cost. At the present time more than twenty American stations are producing a kw.-hr. on one pound of coal. A striking example of the increased fuel economy is found in the fact that the coal consumption in Pennsylvania increased from 5,060,000 tons in 1919 to 5,276,000 tons in 1924, while the electric output increased from 3,070,000,000 kw.-hrs. to 5,029,000,000 kw.-hrs. in other words, a 63 per cent. increase in power output involved less than 4 per cent. increase in fuel consumption. In one particular instance in this country an 80,000 kv-a generating station operated at an actual rate per kw.-hr., 20 per cent. lower than any previous performance on a commercial scale. A comparison of foreign with American practices show that the heat consumed per kw.-hr. for the most efficient French station was 22,240 B.t.u.; for the most efficient English station 20,150 B.t.u. and for the most efficient station in the United States, 18,030 B.t.u.

Generating Methods.—The tendency towards increasing the ratio of alternating current generation to direct-current generation is still evident. At the present time, of the total power generated in central stations, only 1.4 per cent. is direct. By way of comparison, 39 per cent. of the total power generated in central power stations in 1902 was direct. Of the total energy generated in the United States 80 per cent. is generated in fuel-electric plants and 20 per cent. in hydroelectric plants. The total developed water horse-power in this country is now 10,000,000, showing an increase of 950,000 horse power in 1925. It is estimated that there is about 22,000,000 additional water horse-power available for development. Throughout the world, according to the United States Geological Survey, 29,000,000 horse power was developed by water power in 1923. This represents an increase of about 25 per cent. in three years. The increase was about 1,500,000 in North America; 3,400,000 horse power in Europe, and 1,000,000 horse power in Asia. Probably one of the most important developments of the near future in steam generation, is the application of the mercury-vapor-steam cycle which has shown an economy better than 14,000 B.t.u. per kw.-hr. While an actual plant is using this cycle in operation, extensive applications have not yet been made. In general the cost of fuel has dropped somewhat in recent years due to increased efficiency; however, there has been an increase in fixed charges from 2.5 mils to 4.5 mils per kw.

MACHINERY

Tendencies in Design.—Some of the tendencies of modern design making for better efficiency and dependability are as follows:

a—The use of house turbines, auxiliary generators, and storage batteries for insuring the auxiliary power supply.
b—Isolated phase layout and the use of reactors and other protective devices in the switch house.
c—The duplication of auxiliaries, and the provision of excessive amounts of spare capacity in boilers and turbines.
d—The use of exceedingly high steam pressures, with a single stage of steam reheating during expansion.
e—The use of pulverized-fuel-burning equipment.
f—The use of variable-speed motors for driving auxiliaries.
g—The use of air heaters or economizers.
h—The use of large amounts of surface in the surface condensers for main turbines.
i—The use of the highest steam temperatures that are possible with existing materials.
j—The use of three- or four-stage bleeding for raising temperature of feed water to within 75 degrees of saturated steam temperature.
k—The use of large mills for pulverizing coal.

Experience has also shown that as the ratio of the number of stages of a turbine operating in the superheating region to the number operating in the moisture region is increased, the actual thermal efficiency is improved at a rate far in excess of the theoretical value. Tests recently made show that the heat input of a turbine installation may be decreased from 6 to 7 per cent. by resuper-heating the steam between stages. In hydroelectric design there is a tendency towards the use of larger water wheel turbines and generators. The object is not so much higher efficiency as lower cost per unit of installed capacity and decreased space. It is interesting to note that hydroelectric generators are becoming standardized. An excellent illustration of this is to be found in the fact that although the three 32,500 kv-a generators of the Niagara Falls Power Company were built by three different manufacturing companies, they are very similar in type and detail. The present range of speed in such generators is from 60 to 600 r.p.m. The chief improvement in generator design is increased accessibility. Completely enclosed units are being built to secure better control of the ventilation of the generator and the heating and ventilation of the generator station.

Hydroelectric System.—Of the recent developments in hydroelectric systems, that of the Pacific Gas and Electric Company is particularly interesting for two reasons, first because of the large number of diverse plants, and second, because it is the only system employing 220,000 volts at 60 cycles. The entire system comprises 28 plants with a total installed kv-a of 398,975, with transmission voltages ranging up to 220,000 and station ratings up to 81,000 kv-a per station. Both turbine and impulse wheels are employed, and the static heads range from 55 to 1,865 ft. Synchronous condensers are used at important stations to control the power factor and the voltage at the receiving end of long transmissions. This group of stations operates in connection with four steam-electric stations with a total installed capacity of 142,000 kv-a. These stations act as standbys and assist the hydroelectric plants in carrying peak loads. The largest water-wheel generators ever installed are the 65,000 kv-a units recently put in operation at Niagara Falls.

Central Station Practice.—An example of modern central station practices is found in the Philo Station of the Ohio Power Company which has two 40,000 kw. single cylinder turbines operating at a throttle pressure of 550 lbs. per square inch gauge, at a temperature of 725 degrees F. The water rate corresponding to a load of 40,000 kw. is reported to be approximately 8 lbs. per kw.-hr. The heat consumption for this station has been as low as 13,715 B.t.u. per kw.-hr. of net station send-out, corresponding to a load factor of 81 per cent.

This year in the new Richmond Station of the Philadelphia Electric, there will be two new 50,000 kw., 62,500 kv-a, 60 cycle, 1800 r.p.m. tandem compound turbo-generators. The New York Edison Company has just recently ordered two 60,000 kw., 60,000 kv-a, 1,500 r. p.m. single cylinder turbo-generators. The generator which supplies the power for the essential auxiliaries is directly coupled with the main generator and is driven by the main turbine. In the Trenton Channel Station of the Detroit Edison Company, power for auxiliaries is obtained from separate turbo-generators which operate as condensing machines and constitute a separate power plant within the large power plant. Five 30,000 kw. and nine 20,000 kw. turbines of the new Westinghouse multi-exhaust Bauman type have been placed in service. In the Crawford Avenue Station, Chicago, and the Richmond Station, Philadelphia, the power for the essential auxiliaries is to be obtained from a transformer, which is connected directly to the leads of the main generator.

Largest Turbine Casting.—It is interesting to mention the production of a turbine casting which is the largest ever made. The casting is for a 60,000 kw. steam turbine for the New York Edison Illuminating Company. It weighs nearly 45 tons and is over 25 ft. in length and 11 ft. high. Experiments are being carried on at the present time with extremely high steam pressures for turbine operation. One large company has employed pressures as high as 1,200 lbs. per square inch and reports successful operation.

ACCESSORIES

Electric Shovels.—These are being used more and more for handling coal and promise to replace the steam shovel in general application. One such shovel installed in the Brooklyn Edison Company's Hudson Avenue Station picks up 2½ tons of coal at one scoop, lifts it 100 ft., trolleys it in and discharges it into the hopper. The initial tests showed that the shovel is easily able to unload 200 tons per hour. Shovels are also being used for other purposes such as handling ore in mining. One company previously operated steam shovels handling approximately 3,000 tons of ore a day, and using five tons of coal at a cost of $10 per ton at the shovel. Electric shovels were installed which operated at a power consumption of 600 kw.-hrs. per day. This power costs the customer one cent per kw.-hr, making a total cost of $6 per day per shovel as against a cost of $50 for the steam shovel.

Switchboards.—There has been a radical change in the design of switchboards, particularly for use in industrial plants. The switchboards in vogue are known as the "Truck Type." One manufacturing company has placed more than 500 of these units in operation in the last year. Each unit is completely assembled at the factory and consists of a steel housing with a removable truck carrying all the apparatus upon which the continuity of the service depends. It has been found that this type of switching equipment has a number of advantages over the masonry or open-steel frame structure, some of which are the following: the equipment is completely assembled and tested in the factory; the apparatus is thoroughly interlocked so that mistakes in operation are prevented; live parts in the housing are completely enclosed, even with the truck withdrawn; the truck units are interchangeable and a spare can be placed in service quickly and safely even with a live bus; floor space and head room are saved. In connection with these and other types of switchboards it is important to mention the fact that various units such as switches, breakers, relays and meters are being made much more compact than previously. A decided improvement in reliability and accuracy of operation of such apparatus has been noticed in the past few years.

Substations.—Many engineers are now of the opinion that automatically controlled substations are less expensive than hand-operated stations in maintenance. The actual figures in one case cite a reduction from $43,000 to $10,000 per year for maintenance. The first automatic installation was made about ten years ago and one company alone has built nearly 2,500 such stations since that time. These stations render 2,200,000 kw. automatically serviceable and are divided as follows:

569—equipment for controlling 493,000 kw. in motor-generator sets, synchronous converters and condensers, ranging in size from a 25 kw. lighting motor-generator set to a 9375 kv-a hydroelectric unit; and

1890—feeder, supervisory, and power line switching equipments for directing the flow of 1,700,00 kw.

The early growth in the application of automatic operations was checked by war time activities, but since 1919 the business has greatly increased, the value for 1924 being about fifteen times that of 1919. It is predicted that before long we shall see very nearly all electric operations performed automatically and that workmen will be employed only to see that the equipment is kept in shape to function properly.

POWER DISTRIBUTION

Correctives. — There is at the present time a growing tendency of power companies to distribute alternating current at 4,000 to 5,000 volts rather than at 2,300 volts. This results in an increased demand for power-factor corrective apparatus to operate on the higher distribution voltages. The static condenser has already taken its place as a reliable and economical method for improving power factor, particularly for applications where static apparatus requiring little attention is desired. To meet this demand a new type of static condenser has been designed for direct connection on circuits, using as high as 5,000 volts. The condenser element is made up of alternate layers of laminated paper and tin foil conductor. The units are made in many sizes up to 300 kv-a.

Cables.—The use of underground cables for distribution is rapidly increasing. Their advantages for congested districts are obvious and with the growth of the larger and even medium-size cities are steadily overcoming the only real disadvantage, namely, a somewhat increased cost. Only a few years ago many engineers were convinced that underground distribution was commercially limited by the inherent characteristics of insulating materials, to not more than 25,000 volts. Recently an order was placed by The New York Edison Company for a number of miles of cable to operate at 132,000 volts.

One of the latest developments in alternating-current distribution is the interlacing or interconnected automatic network system. A group of high-voltage feeders supply distribution transformers which are interconnected on their low-tension sides to form a network. In such a system the failure of one feeder does not cause a failure of load supply, since the remaining feeder provides the necessary energy. The automatic network disconnects the distribution transformers from the network in case of a short circuit on a high voltage feeder, preventing feed back of energy from the network into the faulty feeder. It also recloses automatically when the normal voltage and phase conditions return.

LIGHTING

Output. — In the year 1924, the total value of lighting equipment in the United States was $205,886,000, an increase of nearly 14 per cent. as compared with 1923. It is estimated that 14,000,000 American homes are equipped with electric light. The house-lighting voltages throughout the country vary within a wide range, 115 volts promising to become standard for general lighting service.

In 1924, 1,750,000 carbon lamps were made. More than 261,000,000 large tungsten lamps were manufactured, or over 7 per cent. increase as compared with 1923. The average efficiency in lumens per watt was slightly higher. The 25-watt lamp is still the most popular size. The 40- and 50-watt lamps are next in demand. Twenty-three per cent. of all lamps are gas filled. Over 188,000,000 miniature lamps, including flash, automobile and Christmas-tree lamps were made in 1924, showing an increase of nearly 18 per cent. over 1923, 55 per cent. being used for automobile lamps. The average price of incandescent lamps was 30 cents and the total volume of lamp business in 1924 was $104,000,000. Incandescent lamps are also used for search lights with powers which go as high as 3 kw. A recent innovation is the incandescent lamp with an inside frost. This permits easier cleaning. Toggle and tumbler switches have come into much greater prominence for the control of house lighting units.

Illumination Intensity.—Enormous increases in intensity of illumination have been made. Where 4- or 5-foot candles were considered extravagant, this year finds 16-foot candles in the armature-winding room of an electric motor factory, 31-foot candles in a drafting room, and 14-foot candles in an adding-machine room.

Amongst the improved municipal lighting systems of the last few years, the alteration in Chicago's system is typical. The previous system in this city comprising many types of old-fashioned incandescent and arc lamps has been replaced by modern incandescent lamps ranging from 100 to 600 candle power. The addition to Chicago's lighting system cost $2,000,000 and involves 6,000 new units. In Detroit the new street-lighting system consists of nearly 18,000 units of high intensity, as compared with 650 old units. In connection with street lighting a new constant-current regulator has been developed with the unique characteristic of maintaining unity power factor at all values of the load.

There has been a great increase in the use of illumination for sign lighting. On January 1, 1925, there were 1,125,000 lamps in use for signs. Flood lighting is still increasing. Exteriors of many buildings are completely illuminated at night by flood light. A new application for incandescent lamps is to be found in manual and automatic traffic-control signals. Most of the large cities and many of the smaller cities have installed more or less complicated traffic signal systems.

An interesting application of electrical illumination is to be found in the airplane beacons which have been installed between New York and Chicago at an average distance of 15 miles apart. These beacons have proved themselves quite satisfactory for the guidance of the night air-mail pilots. The most powerful beacon in existence is on a mountain top at Dijon, France. It has a beam candle-power of one billion. It is used for the Paris-Marseilles flyers.

Incandescent lamps are being used extensively in place of open-flame lights in mines, giving added safety and dependability. Much experimenting has been done on incandescent bulbs for railway signals lamps. By means of narrow beams of light directed by very efficient optical systems, lamps as small as 0.4 of a candle-power are being used which give more than twenty times the illumination obtained from the old-style oil lamp used for this purpose. The arc lamp, which had such extensive use in the past, is now chiefly used for special lighting such as motion picture projection and the illumination for certain instruments requiring enormous intensities of light. Successful experiments are being conducted on tungsten-arc lamps, the present application being chiefly for the illumination for microscope slides.

The photo-electric cell now provides an accurate means for photometric measurements and is rapidly replacing the older methods. In connection with the manufacture of lamps and reflectors, it is of interest to mention that a new formaldehyde product, similar in many of its properties to glass, has been discovered. The new material can be turned on a lathe, can be rolled, folded and takes a high polish. It is not brittle, and it absorbs ulti-violet radiation.

TRACTION AND DRIVE

Electric Railways.—Electrification has been steadily increasing. A survey made in 1924 showed that throughout the entire world there were 2,351 electric locomotives with an aggregate horse power of 4,259,148. Of these, 1,446 locomotives, totalling 2,780,692 horse power operated on alternating current, while the remaining 905, totalling 1,478,456 horse power, operated on direct current. The distribution amongst the five leading electric railway countries was as follows:

Country	*Number of Electric Locomotives*	*Total Horse Power*
Italy	504	1,209,736
United States..	465	862,956
France	366	384,460
Germany	304	518,841
Switzerland ..	214	384,152

One of the most interesting developments in electric railways is the combination of single-phase alternating-current supply to the locomotive with the direct-current drive. A recent test of this equipment on the New York, New Haven and Hartford lines used 11,000 volts alternating current between track and trolley and inside of the locomotive there was a transformer which stepped down this voltage. This lower voltage operated a synchronous-motor direct-current-generator set, which in turn supplied the direct-current motors on the trucks. Due to the high efficiency of the various units employed and their compactness, it has been proved possible to obtain the advantages both of alternating-current supply and direct-current motor operation.

A motor-generator type of locomotive has recently been built for the Detroit and Ironton Railway. One of the unusual features in connection with the branch for which this has been built is the use of 22,000 volts between track and trolley. The locomotive contains its own substation which includes a transformer and synchronous-motor-generator set. The locomotive transformer is 2,000 kv-a and may be connected to receive 22,000 or 11,000 volts and will deliver secondary current at 1,250 volts. The traction motors are 225 horse power, 600 volts, direct-current series machines.

Several of the American railways have recently adopted gas-electric cars for branch lines. An example of this is the Trenton Branch of the Reading Company. This branch is nearly four miles long and has four intermediate station stops. The maximum grade is 1.1 per cent. The service was previously handled by two steam locomotives, each weighing 211,625 lbs. The present gas-electric car weighs 90,000 lbs. The gas engine delivers 250 horse power at 1,100 r.p.m., has six cylinders and is water cooled. The main generator is 600 volts. Two 140 horse-power motors are located on the forward truck of the car. The operation is very simple and speeds up to 46 miles per hour are obtainable.

An interesting development is the application of the Diesel electric locomotive for yard switching. Its particular advantage is to be found in the fact that it does not incur the heavy standby losses found in the steam locomotive.

Marine.—Electric drive is being used more and more extensively for ship propulsion, and turbine electric drives are to be found on naval craft and ferry boats in increasing numbers. The most interesting development, however, is the use of Diesel electric drives which have recently been applied to electric hopper dredges, tankers, tug boats and fire boats.

TELEPHONE ENGINEERING

Telephone.—One of the most interesting advances in telephone practice in the past few years has been the growth of automatic switching systems. The traffic in many of the large cities has increased to such an enorous extent that the telephone companies have felt that the only possible way of giving adequate service was by replacing the manual system by the full automatic system. In January, 1925, there were 993,000 machine switching telephone stations in operation in the Bell system, as against 576,800 in January, 1924. In January, 1925, there were 185,300 machine stations in New York City, operating out of 21 central offices.

Due to the very complexity of the telephone system in a large city such as New York and the huge investment required in apparatus, it is necessary to replace the existing manual exchanges very slowly. This condition has forced the telephone companies to develop automatic apparatus in such a manner that it can be made to function in connection with manual apparatus. Therefore in those cities in which these changes are being made, part of the traffic originates from a manual exchange and terminates in a manual exchange; part originates in a manual exchange and terminates in an automatic exchange, and vice versa; and some both originates and terminates in automatic exchanges. The introduction of full automatic switching has made many problems for the telephone companies since it is not only necessary to install the new apparatus, but also to educate the telephone public in its proper use in order to insure continuity of good service when a given section is cut over from manual to automatic switching. There is little doubt that most of the larger cities will have full automatic telephone service within the next ten or fifteen years.

New York—Chicago Cable.—The toll and long distance service of the various telephone companies has steadily improved in scope and quality of service. In August of this year a very important telephone cable connecting New York and Chicago was completed after seven years' work. This cable is 861 miles long, 717 miles of which are overhead and the remainder underground. Between the two ends are seventeen repeater stations, and the cable is loaded every 6,000 ft. The cable provides 250 telephone channels and 500 telegraph channels. The total cost was approximately $25,000,000. It is the longest cable of its kind in the world, the next longest being the Boston to Washington cable which is 450 miles in length.

The multiplexing of both telephone and telegraph wires by the use of carrier currents, which was made possible by the simultaneous advent of the thermionic telephone repeater and the electric wave filter, is reaching important proportions. In the case of telephone circuits, it is usually customary to add either three or four high-frequency channels in addition to the voice-frequency channel to a pair of wires, thus increasing the capacity of the physical circuit either four or five fold.

The shortest length of line which it is now economical to multiplex with carrier facilities lies between 150 and 200 miles, but it is expected that further improvements and simplifications will extend the field of applicability of carrier systems. At the present time there are about 45,000 miles of carrier telephone channels and 180,000 miles of carrier telegraph channels in commercial operation in the United States.

Havana—Key West Cable. — The longest undersea telephone cables in the world connect Havana with Key West, the distance being about 110 miles. These three cables provide grounded telegraph circuits in addition to the voice-frequency telegraph circuits and also, above the range of frequencies assigned to the telephone channels, supply carrier telegraph facilities. Among the developments which have made these cables possible are refinements in cable transmission theory. On the basis of this theory the cables, which are the continuously loaded, single-core type, were designed with a cylindrically wound copper tape, concentric with the central conductor but insulated from it, this tape together with the armor wires and sea-water forming a return path of lower impedence for the high-frequency currents than the armoring and water alone.

The problem of inductive interference is being systematically investigated by a joint committee of the National Electric Light Association, The Western Union Telegraph Company, The Postal Telegraph and Cable Company, The American Telephone and Telegraph Company, The American Railway Association, The American Electric Railway Association, and representatives of the electrical manufacturers. The main matters under consideration are the measurement and effect of residual voltages and currents, the wave form of generators, and the relation between the telephone interference factor and noise, the harmonics due to the permeability of the steel in transformers and other apparatus.

TELEGRAPH ENGINEERING

Telegraph.—Two new systems of carrier current telegraphy for use on telephone lines have been placed in service this year. The first employs carrier-frequencies below the voice range and can be used simultaneously with telephone messages. The second system uses frequencies in the voice range, 400 to 2,000 cycles; affording 10 simultaneous two-way channels over a single pair of telephone wires. This system is used only when the pair of wires is not being used for telephone communication. Both new systems depend upon ultra-sensitive relays which have recently been developed.

New York—Azores Cable.—A remarkable cable has just recently been completed between New York and the Azores. This cable is of special interest because of its ability to handle four times the traffic of previous cables of the same size and length. This is due to the use of the new magnetic alloy known as permalloy. This magnetic alloy under the conditions used has a permeability of 2,300 as against 115 for the material used in previous cables such as the Key West-Havana cable. The New York-Azores cable is helically wound with permalloy tape. In addition to its high permeability this type has low hysteresis and eddy-current losses. The cable can transmit 2,000 letters per minute. Another permalloy cable, connecting New York and Penzance, England, has been proposed, and will probably be laid in the near future.

A great increase in telegraph speed has been made possible through the development of a machine called the "Stop-Start" telegraph printer equipped with a typewriter keyboard requiring only momentary synchronism. It can transmit from forty to eighty words a minute, any distance up to 5,000 miles. Printing-telegraph service has been successfully established between New York and London, over a 3,900 mile cable with six regenerative automatic repeater stations. Tape printers are used.

RADIO ENGINEERING

Radio Telegraph.—Very successful applications of radio telegraphy have been made in the air service. Light and compact transmitting and receiving sets are carried by many of the military aircraft. Another important application is the direction finder which permits the exact location of ships, even in dense fog.

Much experimentation has been done during the last year in connection with short waves, and communication has been established utilizing waves from 100 meters to less than 5 meters. One particular type of short-wave circuit is now in operation between New York and Europe, New York and South America, and between San Francisco and Hawaii. The adoption of short waves for communication over long distances is contrary to the indications of earlier experience, in which it was found that the longer the distance the longer should be the wave-length for reliable service. In employing short waves for long distance communications, these waves are launched into space like high-angle gun fire in such a manner that the waves travel in the upper atmosphere and come back to earth some distance away.

The adoption of short waves has enormously increased the number of possible non-interfering communication channels. Almost all of the trans-oceanic telegraph stations in the world are crowded into a wave-length band 10,000 cycles wide but the short wave band below 100 meters includes 10,000,000 cycles; thus there is room for a thousand times as many messages as are now being handled by all the long wave stations put together.

In the commercial radio systems the adoption of what is known as the Beverage-Rice antennæ system eliminates practically all static and intercepts on one antenna all the signals from the stations in Europe. These signals are then automatically separated in more than a dozen receiving sets and sent over line wires to the operating room in New York City. The antennæ system consists of two separate antennæ, each ten miles long joined by a transmission line.

Radio Broadcasting.—In the past year the most outstanding novelties in the operation of broadcasting stations are to be found in the use of higher powers, up to 50 kw., the interconnection of stations both by short waves and land wires, and the marked increase in the faithfulness of tone modulation and amplification. The attitude of broadcast listeners has totally changed since the inception of broadcasting, with the result, that the industry has closely followed the public's desire. In the early days the novelty of radio telephony was so great that the character and technical quality of the broadcasted material was completely overlooked. It seems that the broadcast listener was interested only in determining how far he was able to receive and also how many stations it was possible for him to enter upon his log sheet.

While great improvements have been made in the commercial receiving sets, much is still left to be desired from the standpoint of tonal quality. Some of the most recent improvements involve the simplification of control (many sets now can be operated with one dial for station selection), reliability of operation, ease of maintenance (house-current power-supply), and a general improvement of quality, particularly due to the introduction of better audio-frequency amplifiers and loud-speaking apparatus, for example, the cone type of loud speaker.

Some of the probable advances lie in the direction of more economical vacuum tubes, a more efficient loud-speaking apparatus which does not require the use of power vacuum tubes for its successful operation and a general simplification and standardization of design. The present tendency amongst broadcasting stations is towards interconnection. In the case of important events, such as President Coolidge's address of November 3, more than twenty-five stations spread throughout the country have been interlinked, permitting the reception of the message at virtually every place in the United States.

Radio Telephony.—The development of radio telephony for commercial messages is making notable progress. An experimental system has been demonstrated by telephone engineers which enables a passenger on a ship, several hundred miles at sea, to communicate with any telephone subscriber on the land using the latter's regular telephone instrument. The system is duplex in its operation, permitting the subscriber on land and the person at sea to hold a two-way conversation exactly as over the usual telephone circuit. Although most of the development work was done during the years just previous to those here reviewed, there has been no very extensive installation of ship-to-shore telephony, largely because of the numerous commercial problems involved.

The serious study of transatlantic radio telephony continues. To illustrate the progress which has already been made: in a recent demonstration, a speaker in New York talked through his ordinary telephone to a group of persons in London, the voice being carried from New York to the radio transmitter located about 70 miles out on Long Island, where it was automatically relayed to the transatlantic radio link. The extremely difficult character of the problems involved in the offering of regular commercial service may be gathered from the fact that, due to the erratic variations of atmospheric conditions as they affect the transmission of radio signals, the sending power required to produce a given intensity of received signal may increase by a factor of 10,000 within the space of a few hours.

Miscellaneous.—During the past year photographs were successfully transmitted across the Atlantic by radio, and reproductions appeared in many of the American newspapers. In April, 1925, the first commercial picture-transmission service was introduced. It embraces the cities of New York, Chicago and San Francisco, making use of the long distance telephone and telegraph lines between these points. The actual sending time of a 5″ x 7″ picture is only seven minutes. The picture to be sent is prepared in the form of an ordinary transparency and after transmission it appears as a negative from which prints can be made without delay.

PHOTOGRAPHIC ENGINEERING

Photographs by Wire.—During the convention of the American Medical Association in May, electrocardiograms were transmitted by a phototelegraph method from a hospital in a middle western city to the medical convention in Atlantic City. At the same time the heart sounds of the patient in this same clinic were transmitted over telephone wires, amplified and faithfully reproduced in the stethoscopes of the physicians attending the convention. In this manner an actual diagnostic conference was held by these physicians in Atlantic City although the patient was many hundreds of miles away.

Another recent interesting application of the transmission of photographs by wire has been made in several municipal police departments. They transmit from one city to another, both the photograph and the fingerprints of fugitives. Another very important addition to the art of communication is the perfection of the apparatus which is known as the public address system. This apparatus is used in two forms: local and remote. In the local form, the voice of the speaker is collected by a microphone, greatly amplified and reproduced by a group of powerful loud speakers located above the speaker's head. In this way a speaker using his natural voice intensity can readily be heard by an audience filling a large auditorium or stadium. In the remote type, the speaker has placed by his side a microphone and the amplified output of this microphone is connected by telephone wires to one or more auditoriums in which are located the necessary re-amplifying and loud speaking apparatus. In this manner the speaker, or any other source of sound, may be heard simultaneously in several auditoriums, located, if desired, in different cities.

MOTOR ENGINEERING

Applications. — Since the starting and running requirements of motors are very different, and a large part of the development of induction motors has been in connection with running conditions, it is interesting to note that recent investigations have shown how to improve the starting characteristics of these motors. It is now possible to build induction motors in which the starting current is limited to approximately 4½ times the full-load current.

During the last year a new type of synchronous motor having field poles of special design and with rotor windings arranged for two methods of connection was developed. The particular feature of this new motor is that it has two running speeds. This promises a great extension of the application of the synchronous motor for such uses as mine fans, and ammonia compressors in which it is distinctly desirable to have two efficient running speeds. The cost of this motor is only slightly higher than that of an ordinary motor whose horse power and speed are equal to the low speed rating of the two-speed motor.

Another very important motor development is the new adjustable speed brush shifting alternating current motor. It is intended for single and polyphase, 60-cycle circuits operating at 220, 440 or 550 volts and has a three-to-one speed range which is controlled by shifting the brushes. The high-speed power factor is about 95 per cent. and the low-speed power factor about 70 per cent. The efficiency, which remains nearly constant over the entire speed range, is high as compared with the wound rotor induction motor employing secondary resistance. Among the applications of this new motor are: cloth-pressing machines, rubber calenders, oil-refinery cross-process pumps, rolling mills, machine tools, newspaper presses and dough mixers.

New types of alternating current motors have been designed for the operation of elevators, which overcome most of the previous disadvantages of the ordinary alternating current motors when used for this purpose. These new motors include single- and double-winding induction motors, double motor sets, single and polyphase commutator motors.

A new high-frequency alternator is now available for supplying high-frequency for inductive furnaces. These furnaces are being used largely for producing alloys of nickel-iron, gold-platinum, osmium-iridium, and other high melting-point alloys where freedom from contamination and thorough mixing are necessary.

Many motors are now built totally enclosed. The ventilation is obtained from an external source through pipes. These motors find application in places where fumes and acids would cause serious damage to the motor.

A special type of generator has recently been designed with a drooping voltage-current characteristic for use is arc-welding outputs. This drooping characteristic is necessary for the lowered resistance of the welding circuit after the arc current has been established. To avoid the cost and complication of separate excitation, the generator has a split field. By using the armature-reaction on this field, and installing a third brush, a constant voltage is obtained. This generator is being supplied as an integral part of a compact portable arc-welding set.

RECENT APPLICATIONS

A marked increase in the application of electricity for industrial heating has taken place recently. The present methods of heating by electricity are the metallic resistor, electric arc, and magnetic induction. The metallic resistors have been fairly well standardized by the manufacturers, and range in size from 50 watts to cast-iron protected units of several kilowatts. In general the temperatures obtainable by means of such resistors do not exceed 500 degrees F, unless they are used in specially constructed ovens or furnaces, under which conditions it is possible to obtain temperatures as high as 2,000 degrees F.

One automobile manufacturer alone has 14,000 kw. of electric japan baking ovens, and factory after factory is replacing its oil and gas and steam ovens by electric ovens. Among the chief advantages are uniform temperature, automatic temperature control, lower maintenance, reduced personal hazard and the elimination of noise, dirt and fumes.

With the improvement of the radio, the attention of the public was brought to the comparatively poor quality of the talking machine. Research in this field has been stimulated to such an extent that at least two large talking-machine companies have produced machines which operate electrically; that is, the conversion taking place between the record and the listener is principally electrical rather than mechanical. This has resulted in a material improvement in the quality of reproduction. Moreover, at least one large company is now manufacturing its master records by an electrical process, which has greatly increased the tone range and volume obtainable from the record.

A new X-ray tube has been designed having a 50-milliampere output at 250,000 volts, which is being used in research, manufacturing processes and therapeutics. This tube is the largest yet made, commercially, and has a water-cooling system, whereby circulating water is carried directly to the inside surface of the anode of the tube.

A new type of self-contained portable X-ray outfit has been developed for use in dentistry, medical diagnosis, physical laboratories, and other applications. The tube and transformer are completely immersed in oil. The apparatus is quite safe and is easily operated and can be connected directly to the 110-volt alternating-current house-current supply.

An interesting application of high-frequency electricity is to be found in the so-called Radio Knife. The radio knife to a certain extent can take the place of the scalpel in surgery. This knife, which consists primarily of a round ended stylus, and a metal plate which is placed under the body of the patient, has impressed between these two electrodes a high frequency (one million cycles) source of electricity. When the stylus is brought in contact with the skin of the patient a cut is made electrically into the patient, the depth of this cut being regulated by the intensity of the current and the angle of the cut by the angle at which the stylus is held. The incision has the advantage of being self-cauterizing and almost bloodless. Surgeons who have used this device state that it has future possibilities in surgery.

A very important instrument recently developed is called the "Stethophone." This consists of a microphone of special construction which is placed over the heart of a patient. The microphone feeds a vacuum-tube amplifier which is also equipped with filters which operate a series of telephone receivers over which are placed the bells of stethoscopes of medical students or of physicians who wish, simultaneously, to listen to the heart beats of the patient under examination. In this way a large audience of such students and physicians are enabled to study the heart sounds of the patient together with the lecturer. By means of the filter circuits it is possible to subordinate any of the main heart sounds, thereby making sounds such as murmurs more audible, and consequently more easily studied.

Among many new important instruments designed for electrical laboratories is a six-element portable oscillograph. This instrument is particularly valuable because of its completeness, its ease of operation and its ability to record six variables simultaneously. It is being used successfully for tests in automatic substations, electric railway locomotives, power plants, circuit breakers, relay and circuit tests. An important addition to testing instruments is the Klydonograph, or surge recorder. By a photographic method this instrument records graphically the nature, time, intensity and duration of line surges.

RESEARCH

Important recent researches in electrical engineering have concerned themselves with the properties of dielectrics, solid, liquid, and gaseous. Due to the increased use of very high voltages both on open-wire and cable construction, it is extremely important to note the effects of these voltages upon the properties of such dielectrics as are commercially available. Many of the large companies and some of the technical schools have installed high-voltage generating apparatus with which to investigate dielectric properties.

A detailed study of the magnetic properties of various magnetic materials has occupied the research laboratories of the large manufacturing companies to a very large extent during the last year, chiefly in an endeavor to permit the calculation of the magnetic properties of the materials used in machines, rather than to depend upon empiric formulas for design.

A study of the molecular and crystal nature of solids has been greatly advanced in the past year by the use of the X-ray refraction apparatus. So important is this form of investigation that one manufacturing company is building X-ray apparatus of this nature on a commercial basis. It is believed that much of the empiric knowledge concerning the properties of various compositions, such as the alloys, will be placed on a firm theoretic base by the use of this X-ray analyzer.

Extensive investigations have been made on the properties of cold light. While most interesting material of a theoretical nature has been gathered on the properties of luminous and phosphorescent substances, both animate and inanimate, there is at the present time no very extensive application which can be made of these properties.

The vacuum tube rectifier circuit has been altered in the past year in such a fashion as to permit the production of alternating currents from a direct current source. The inventor of this scheme has termed the apparatus the "Inverter." Although only laboratory models have been built thus far, it is quite likely that the development will permit the use of this apparatus in power sizes, thereby giving a static device for the transformation of direct current energy into alternating current energy.

Experiments have recently been conducted in France with a three electrode tube containing mercury-vapor. By proper adjustments of the constants of the circuit in which this tube is used, it has been found possible to obtain amplifications of more than 1,000,000 to 1. If this apparatus becomes commercially available it will have numerous applications.

An American laboratory has succeeded in producing bars of copper, each bar a single crystal, with the result of increasing the electrical conductivity 13 per cent. above that of commercial copper used for electrical conductors.

The sustained oscillations of certain crystals exhibiting the Piezo-electric effect have been used as frequency standards in communication investigations. The constancy and accuracy obtainable is so great that certain radio transmitters are using such crystals for master oscillators.

Among the new magnetic materials developed for telephone purposes, one consists of very finely divided iron dust cemented together under extremely high pressure to yield a material of substantially the same density as iron, of only 1/20,000 the electrical conductivity of iron, nearly the same initial permeability as iron, and yet, because of its finely divided ingredients and the consequent microscopic free poles distributed throughout it, possessing practically no residual magnetism even after exposure to strong fields.

SOURCES

Some of the more important printed sources from which the above report has been abstracted are the 1925 issues of the following publications: *Journal of the American Institute of Electrical Engineers*, *Journal of the Institute of Electrical Engineers* (British), *Transactions of the Illuminating Engineering Society*, *Electric Railway Journal*, *The Electrical World*, *Journal of the Institute of Radio Engineers*, *General Electric Review*, *Electric Journal* and the *Bell System Technical Journal*.

MECHANICAL ENGINEERING

By Calvin W. Rice

Secretary, American Society of Mechanical Engineering

and

Leon Cammen

Associate Editor, Mechanical Engineering

INTRODUCTION

Engineering Morale.—One of the most significant things, considering the field of mechanical engineering as a whole, is the fact that the engineer is gradually reaching, and in some lines has reached, the point where he is not afraid to undertake anything, from a point of view of engineering. In the past when a question of unusual performance of a machine came up there frequently was apprehension as to how this machine would work. This applied to structures of unusually great size or machines subject to unusually big stresses or running at theretofore unknown speeds. In fact, when the Quebec Bridge collapsed twice, the most prominent engineers of the country agreed that the failures were due simply to the then prevailing lack of knowledge of the behavior of materials under the stresses to which they were exposed in that particular structure. When the question of forty or fifty thousand k.w. generators first came up some ten years ago the designers were frankly uncertain as to the reliability of machines of such size.

All this was due to lack of exact knowledge of the underlying processes of operation of machinery and behavior of materials. What was then called factor of safety was (and was frankly recognized to be), to a considerable extent, of the nature of a factor of ignorance. The work of scientists and engineers within the last decade in particular has eliminated a good deal of the uncertainty which prevailed in this respect. New methods have been developed which make it possible for the engineer to stop guessing and supposing as to what is going on and to know instead exactly what he has to face and to what extent the materials and machinery which he produces are capable of handling any situation that may arise.

It is because of this that the engineer is no more afraid to go the limit in his designs. In 1916 the Ford Motor Company designed a plant carrying a superheat up to three hundred and fifty degrees while pressures in steam boilers up to 600 pounds were earnestly advocated. The reservation was made, however, that there was still a problem how to obviate the mechanical defects involved in the design of engines and turbines for such steam pressures. Today boilers are being built in this country for pressures up to 1,200 pounds and there is no serious question in anybody's mind as to their ability to work in a satisfactory manner. This is so because we know today how the materials used in the boilers will behave at temperatures in excess of 1,000 degrees Fahrenheit. There is no longer any reason to fear hidden defects due to improper casting such as blow holes or slag enclosures because the use of X-ray permits to see what is inside the casting and at the boiler wall.

Growth of Exact Knowledge.—With the knowledge thus obtained (and we are only at the beginning of engineering work backed by ample exact knowledge) the engineer is reaching out beyond the most optimistic imaginings of only ten years ago. Locomotives with engines operating at 350 pounds pressure; steam turbines of 80,000 horse power, of which a single one would be sufficient to supply all the electric power needed in some of the smaller European countries; measuring methods permitting an accuracy of the order of 1/200,000,000 part of an inch; machinery actually running at speeds of 660,000 revolutions per minute; photographic methods that permit to record easily the flight of a bullet; observation methods that show the motion of a wing of a dragon fly; these are but a few of the very many significant achievements of modern mechanical engineering.

Natural Resources.—It is also very significant that within the last few years and in the past year particularly, as far as one can judge from public expressions of engineers, the feeling of fear as to the continuation of natural resources is disappearing. When a century ago Malthus propounded his famous theory in accordance with which the growth of food resources occurred in arithmetical progression and the growth of population in a geometric progression with the threatening result of population outrunning food supplies, there was real perturbation among scientific men. Some twenty years ago Crookes startled the world by predicting that the exhaustion of the supply of nitrate fertilizers would lead the soil to lose so much of its productivity as again to threaten the existence of the human race. And it was only a few years ago that the late Senator La Follette expressed the opinion in a debate on the floor of the Senate that "dollar a gallon gasoline" was in sight within a few years, while predictions as to the exhaustion of coal and consequent stoppage of the wheels of industry have been in the past too numerous to mention.

Production of Power.—Engineers have given up making such predictions nowadays. In the first place they found that with the increase in the perfection of design of our machinery such economies have been obtained as to decrease the use of natural sources of power while increasing the production of power. In the second place they have solved so many difficult problems in the past when it became really necessary to have them solved as to acquire a serene confidence in their ability to handle any situation that may arise. The threat of exhaustion of oil as a source of gasoline was met by better design of the engines which is already saving about twenty-five per cent. of the fuel used, and by processes of cracking which increased the recovery of gasoline from oil from twenty to about fifty per cent. And then the engineers are confident that by the time the oil supplies are exhausted they will either design engines that will use an entirely different fuel or produce engine fuel oils from different sources, be it by converting lime and coal into calcium carbide, carbide into acetylene and acetylene into alcohol, or perhaps by converting coal direct into motor oil, or by burning coal to carbon monoxide and synthesizing a fuel by catalysis, or other means.

It is well, however, while recognizing the enormous influence of the research on development of modern engineering not to overestimate it. An important investigation was completed last year in Germany on the laws of radiation of heat in furnaces. It was realized that phenomena of heat radiation exercised a profound influence on the performance and efficiency of furnaces and it was expected that a more thorough knowledge of these phenomena would help in the design of furnaces. It was rather surprising to find that the main fact that this extensive investigation has established was that the furnaces now in existence have been correctly designed and were in accordance with laws unknown at the time when they were built. Apparently by some mysterious faculty of reasoning engineers have found the correct solution of the problem even though they did not know enough about it at the time to prove that it was the correct solution.

MACHINE TOOLS

Progress in Construction.—There are seldom any spectacular developments in this field. There were not any in the past year, which does not mean, however, that substantial progress has not been made. This progress was partly in the construction of bigger and heavier tools. Thus, a huge turning machine was recently built which swings 300,000 pounds between centers and has eight electric motors. A 36-inch grinding machine was built on a carriage for use anywhere along its 45 feet of working length. Then an enormous machine was built for planing and upsetting steel plate designed for making lock-bar pipe. This machine has two main bodies, 45 feet in length, carrying lead screws. The screws alone are six inches in diameter, have triple threads and are connected to a drive shaft operated by a two hundred horse-power motor. The machine has to be immensely rugged, as in one operation, upsetting the edges of one-half inch plate, the pressure of approximately 400,000 pounds is applied.

On another hand, it will be found that precision machinery has also developed greatly. Only a few years ago working to 1/1,000 of an inch was considered high accuracy. Today sensitive comparators and light interferometers provide a precision of the order of 1/1,000,000 of an inch for gauges and indirectly make a real interchangeable manufacture possible at a low cost. Not only that, but entirely new instruments are being developed all the time. There was known for a long time an instrument called stroboscope, which permitted to measure the speed of rotation of parts without touching them. This has been now developed into a rotoscope, which enables to observe, as if they were standing still, rotating bodies, having speeds ranging as high as 20,000 revolutions per minute and possibly higher. Such instruments are applied, for example, for studying vibration of high-speed shafts or determining causes of disparity in the output of sewing machines, all supposed to be driven in the same way and at the same speed. The motion of a dragon fly's wing has also been investigated, by the same apparatus, and it has been found that the wings, contrary to hitherto made assumptions, are not flapping up and down but are caused to execute a definite conical movement. Twenty or ten years ago all of these matters were subject to guess work. Now they are gradually coming into the fertile field of exact knowledge.

Velocity of Machinery.—It is primarily because of the application of such knowledge and the ability to produce parts of high precision that the velocity of machinery used in modern engineering is rapidly increasing. Only a few years ago 1,600 revolutions for an automobile or aëroplane engine was considered to be about the limit of commercial speeds and an attempt by an American automobile builder to put on the market a 3,400 r.p.m. motor failed rather dismally. Today the light aëroplane engines run at speeds up to 4,000 revolutions without any distress, while, in special machinery, speeds are beginning to be employed which are scarcely believable even in these days of ever rising achievement. Thus, in France a device called the superhigh speed turbine has been built which attained a measurable speed as high as 4,000 revolutions per second. There is reason to believe that the actual maximum speed was in excess of 11,000 revolutions per second, equivalent to 660,000 revolutions per minute. Rotors of special steel are now under construction which it is expected will permit the device to run at velocities of 1,000,000 revolutions per minute.

POWER GENERATION

Utilizing Tides.—Apart from such conventional methods of power generation as the utilization of rivers and waterfalls, and oil, gas and steam power (discussed elsewhere), an increasing amount of attention is being given to other forms. Utilization of the power of the tides has for scores of years attracted the attention of inventors, but until quite recently all attempts at doing it in a practical manner have failed. In the last year for the first time a true ray of hope became visible. In France some successful experiments were made with the Pinard-Sala system in which a funnel is used located under water with the wide end open towards the incoming waves. The funnel then contracts gradually and ends in a vertical cylinder in which operates a floating piston. The power delivered to the piston is determined therefore not by the ratio of the crest of the wave to its trough but by the total mass forced into the funnel which is proportional to the ratio between the cross section of the funnel and that of the vertical cylinder. This embodies therefore fundamentally a principle somewhat similar to that successfully used in the hydraulic press. In tests made with the conduit of sheet metal, twenty-three feet long, it has been found that with waves which are not of sufficient violence to knock over a man so much pressure was obtained in the conduit itself that the blades of the latter were twisted in a few moments and the conduit burst.

Another development in the direction of utilizing the force of the tides which deserves earnest consideration is embodied in the scheme of Dexter S. Cooper for harnessing the rise and fall in the Bay of Fundy. There it is intended to enclose the Passamoquoddy Bay by two walls admitting water through a series of gates into the Bay on the high tide and permitting this water to run out at the other end through another series of gates at low tide, thus obtaining a continual and steady supply of power. By a referendum vote the State of Maine approved granting permission to Mr. Cooper to install his project. Further approval of the project would, however, be necessary by the Federal government of the United States and the Dominion of Canada before actual work is started.

Harnessing the Winds.—In another direction an earnest effort is being made to put the wind to work. The windmill and the sail are among the earliest forms of generation of artificial power, but they lost their importance in industrial countries and on the high seas with the development of steam power. They are apparently coming back, however, particularly in Europe where in the last year several new types of windmills embodying the most recent advances in engineering design have been built. In this the designers of windmills have been particularly assisted by information gathered in aëro-dynamic laboratories in connection with work on aëroplanes.

Another line of development deals with the application to power generation of the so-called Magnus effect. Magnus, a scientist of the middle of the Nineteenth Century, noticed that if the wind blew against a stationary cylinder the pressure was the same on both sides of the cylinder, but that if the wind blew against a rotating cylinder the pressure on one side was greater than on the other and the cylinder tended to move across the direction of the wind. He used this observation to explain the deviation on projectiles discharged by rifles and guns. The German engineer Flettner applied this principle to ship propulsion. On the small vessel Buckau he erected a cylinder about 61 feet long and 9.2 feet in diameter and rigged up a small electric motor by means of which this cylinder could be rotated. It was found that even moderate winds developed sufficient force to give the ship a speed favorably comparing with that which it would have under conventional sail rigging. A Swedish engineer, Savonius, improved this device by cutting the cylinder in half and putting it together in such a manner as to leave a short distance between the axles, thus producing an off-set effect. It is claimed that the Savonius cylinder, with the same wind and the same power consumption for rotating it, gives a greater output than the Flettner rotor.

Earth's Internal Heat.—Among other things the subject of utilization of the internal heat of the earth was given increased attention. The great success of the plant at Larderello, Italy, where the steam coming from underground sources in the form of soffioni is used to drive turbines, has attracted attention to the possibilities of the utilization of subterranean heat. A small power plant was installed in Sonoma County, California, and tests made in the latter part of the year have shown that it is fully capable of steady and economical operation. There is no likelihood that very large amounts of power can be produced this way, however, as only in comparatively few places are the conditions sufficiently favorable.

STEAM POWER ENGINEERING

Expansion of Turbine.—The progress in steam power engineering within the last years has been enormous. Where a few years ago there was a question as to whether 40,000 k.w. in a single unit was practical, today a steam turbine of 80,000 k.w. is under construction and units of 100,000 k.w. and more are in sight. It is difficult to realize what a steam turbine of 80,000 k.w. means. It is not a big piece of apparatus as far as size goes, and perhaps a better comprehension of its power may be had if it is considered that one such unit would probably be sufficient to supply all the electric light consumed today in a country like Jugoslavia with a population of fifteen million souls. In proportion to the increase of the steam turbine there was an increase in auxiliary equipment. Although the increase in consumption of the turbine and the bleeding of steam at successive stages for water heating have lessened the amount of steam to be condensed per k.w. capacity, the modern condenser has increased in size to 70,000 or 80,000 square feet of surface and requires such enormous quantities of water for condensing purposes that a plant of large capacity can not be located except within reach of a lake, river or ocean.

The efficiency of power generation has also increased enormously. Twenty pounds of steam per k.w.-hour was considered quite good only a few years ago. First class power plants are making a k.w.-hour on fifteen pounds of steam today and ten pounds is distinctly in sight. "A pound of coal per kilowatt-hour" is believed to be a goal within reach of the mechanical engineer.

Other types of steam generators are appearing. In this country a unit is being installed by the Edison Electric Illuminating Company of Boston in which are to be employed a boiler and turbine operating at 1,200 pounds pressure. So great are the stresses induced in such a structure that the boiler drum is made from a forging with walls four and one-half inches thick. All steel castings used in the work, in addition to ordinary testing, have been examined for flaws by X-rays, in addition to which special tests have been developed for the testing of piping, valves and fittings.

A still higher pressure, 100 atmospheres or 1,422 pounds rating is employed in an installation at the Vienna Locomotive Works (Vienna, Austria), where the steam is generated by the Loeffler system. In this method the water is not evaporated in water tubes but in the boiler drum lying outside of the furnace, for instance, near the turbine, so that the latter automatically regulates the evaporation. Evaporation is achieved only by admitting superheated steam to the evaporator and then an increase of pressure may be obtained by varying the heat content of the super-heated steam. It offers the greatest safety even at the maximum pressure as only the superheater consisting of coils of tubes of small diameter lies within range of the furnace.

Improving Furnaces.—The modern power plant engineer is all the time endeavoring to burn more and more fuel for the same furnace capacity, thus imposing on the furnace walls temperature loads of a magnitude unheard of previously. It has already reached the point where an ordinary furnace wall does not stand up any more and various ways are being devised to increase the capacity of the furnace wall to handle the present enormous duties.

One such way to improve the furnace was embodied a couple of years ago in the Hell Gate Station in New York City where water-cooled walls have been installed. Another way, however, is to improve the ability of the refractory substances used in the furnace walls to stand up under the present conditions of intensive firing. The problem is not an easy one because research in this direction has indicated that present refractories would have been fully capable of withstanding, under the temperatures developed in power plant furnaces, had it not been for the fact that coal contains materials which at the temperatures present in the furnace, unite with the refractories and act as fluxes, lowering the melting point of the refractories. To meet this condition it has been suggested to line the furnace walls where they come in contact with fuel with special refractories made from the fuel ash, the idea being that this lining would not be fluxed by coal constituents and would prevent their fluxing the furnace wall proper. Another direction in which great promise is seen is in the use of super-refractories, among which sillimanite may be mentioned. Sillimanite is a mineral which occurs in small quantities in the United States and is said to have been discovered in larger quantities in India and which can also be produced artificially. The study of refractory materials for furnace walls in America is considered so important that it has been taken over by the American Society of Mechanical Engineers and arrangements have been made for actively carrying it on.

Use of Pulverized Fuel.—The fight between the stoker-fired furnace and pulverized coal furnace has been merrily going on in the past year, the former being the more usual type, a sort of established method in the field of power generation, while pulverized coal is playing the part of the young but successful aggressor. At first the honors were with the stoker, the employment of pulverized coal, especially on a large scale, though successful for many years in cement kilns, having been attended with some trouble when applied to power plants. These troubles, however, have been largely eliminated and there is no question as to the brilliant future of pulverized coal in the field of large power plants. In the past year several plants of great capacity have adopted it as a fuel. The Baldwin Locomotive Company installed powdered-coal firing in place of oil firing, not because the latter was technically unsatisfactory but because the supply of oil proved to be irregular and lacking in absolute certainty. The Rummelsburg Central Station near Berlin, the largest central station in Germany, has adopted pulverized coal because with this method of firing it could use any coal that it found obtainable.

Improvements in the use of pulverized fuel have brought about the use of refuse fuel, of which there are many millions of tons lying around all coal-mining districts. Efforts in this direction have been particularly active in England. At the Nechells Central Station, Birmingham, fuel from the pit heaps is being burned, notwithstanding the fact that it contains up to twenty per cent. of ash and less than nine thousand B. t. u. per pound, which means a very low-grade fuel indeed. A still worse material containing up to thirty per cent. of ash is used at the Philadelphia power plant in Durham.

Benson Burner.—As usual there have been several types of new steam generators proposed, and intensive work was done to develop some previously known. Among these latter the Benson Burner is worth particular mention. Though proposed several years ago it has been first tested on a commercial scale in the past year and is now earnestly being developed in England and especially in Germany. In this boiler water is supplied under a pressure of thirty-two hundred pounds to the square inch and heated in the top of the boiler to a little over 900 degrees Fahrenheit. This pressure and temperature were selected for the reason that when this combination is used the steam occupies exactly the same volume as the water. There is, therefore, an evaporation without change of volume and no absorption of latent heat. Moreover, because of the poor heat conductivity of the water it is possible to maintain steam in the top of the boiler and water in the lower part. Tests made with this boiler at Rugby, England, have indicated the possibility of attaining a quite unusual efficiency.

Other Generators.—The two other steam generators worth mentioning are: the Becker boiler and the generator of the Combustion Engineering Corporation. In the former there is no water content in the ordinary meaning at all. Completely atomized water is injected into the pipe system and immediately transformed into steam. The flash boiler effect is, therefore, attained and the boiler is particularly applicable wherever steam is needed only at certain times; because of the rapidity with which steam can be raised it may also be used for taking care of peak loads. In the second steam generator referred to above, pulverized coal is burned under extremely high temperature conditions. The combustion chamber is in the shape of a rectangular box set on end with the sides of the box made up of boiler tubes. The spaces between the tubes have fins providing an air-tight enclosure. The pulverized-coal burners are located in the corners of the box and to raise the temperature of the flame are supplied with air specially preheated. It is claimed that the gases coming from the burners have a whirling motion around the chamber. From there they pass downward into a so-called settling chamber and on the way heat more boiler tubes. It is claimed that this construction results in the evaporation of 35 pounds of steam per square foot of heating surface, a very unusual output.

Last year at Hartford, Connecticut, was installed the first commercial mercury-vapor boiler and turbine developed by the General Electric Company. In this unit heat is applied directly to the evaporation of mercury which drives a turbine. Mercury vapor is then condensed in the same manner as water vapor with this distinction, however, that because of the high temperature of the mercury vapor the condensed water is in its turn evaporated and the steam is used to drive an ordinary steam turbine. There are, therefore, really two circuits and theoretically the efficiency of the plant ought to be very high, the output of the steam turbine being largely a by-product of the operation of the mercury-vapor part of the unit. That the principle of operation of this kind of plant is correct is indicated by the fact that in the past year efforts have been made to apply the same arrangement to marine boilers.

OIL ENGINES

Important Progress.—While there have been no unusual developments in the field of oil engines in the last year, there has been a large amount of solid and valuable progress. The growing recognition of the important field that the oil engine came to occupy in modern industry was well illustrated by the Oil and Gas Power Week in April, 1925, organized under the auspices of the American Society of Mechanical Engineers in association with a number of other prominent engineering organizations.

The most talked of progress of the oil engine was in the marine field. The U. S. Congress placed at the disposal of the U. S. Shipping Board twenty-five million dollars to be used as a revolving fund for making loans to operators of Shipping Board vessels desiring to reconstruct them into motor ships. This was done because it was recognized that the so-called Class A vessels have no chance of making money with the present steam propulsion, but would pay if equipped with the more economical Diesels.

Ship Conversion.—In Europe particularly has there been great advance in the application of Diesel engines in ship building. Not only enormous freighters were converted into motor ships or built as such, but Diesel drive was applied to passenger vessels, among them some of very large capacity. The most notable are the 22,000 ton *Aorangi* and the Swedish American Line vessel *Gripsholm*, the latter to be used in the New York-Sweden trade.

With the growing knowledge of the operation of Diesel engines there has been a material increase in the size of the engine output per cylinder and more expert design of the details until now the reliability of Diesel drive on shipboard is in no way inferior to that of steam operation. So great, in fact, has become the threat of the oil engine in the shipbuilding industry that the builders of steam turbines who were at first inclined to be quite complacent about the situation have become alarmed and are vigorously developing new types, with unusually high steam pressures and new cycles as a means of competition with the rival power.

Engine Design.—In the design of the oil engine itself there has been comparatively little radical new development, the attention of engineers being primarily concerned with the improvement of the existing types for which a growing market has already been created. One or two of the new types put forward in the last couple of years have been tested and some have been found good. Thus reports of tests on a vessel equipped with the North British engines with sliding cylinders, which were considered a daring innovation, proved them to operate in a satisfactory manner. Of the new developments the following deserve particular mention: at the Beardmore Ship Yards in England an attempt has been made to build a crude-oil aircraft motor. This motor works essentially on the Diesel principle with fuel injection, but is also equipped with high-tension ignition. At 1,200 r.p.m. the engine, which weighs around 1,800 pounds, is supposed to deliver 800 horse power. (This output is, however, for gasoline as fuel, all data on the output with crude oil as fuel being withheld from publication.) Another motor of similar construction about which the greatest secrecy is preserved is said to contain eight cylinders in line and deliver 1,050 horse power for a weight of 2,354 pounds. This is not encouraging as far as ratio of output to weight is concerned as there are now on the market excellent gasoline-driven explosion-type engines delivering a horse power for a little more than a pound of weight.

Modified Cycles.—In the field of modified cycles there have been two notable developments. A French engineer, Andreau, designed an engine in which the expansion stroke is considerably longer than the intake stroke. Such a design is justified by theoretical considerations and is said to give a motor of greater output than the conventional motor. The Andreau motor received official recognition from the French Bureau of Inventions.

W. Brown of Sydney, Australia, invented a double-expansion internal-combustion engine which has been tested both in Australia and in this country, and is said to have given an increase of nineteen per cent. in horse-power output with a fuel economy of seventeen per cent. An engine was also built in which, in addition to double expansion, triple and quadruple expansion can be obtained. In this engine the length of expansion is from two to four times that of compression, in addition to which an auxiliary chamber is used in which a well mixed expansive mixture is prepared for later use in the main chamber.

Crankless Engines.—Further progress was also made in crankless engines. The Almen barrel-type engine for use on automobiles was tested by the United States Navy authorities and found to be promising of important results. A 150-horse-power crankless oil engine was shown at the Marine Show in New York, but this has not yet been run under its own power. On the other hand, a 100-horse-power Michell engine designed by A. G. M. Michell (the inventor of the Michell blocks, extensively used with marine turbines) has been run under test at the University of Queensland and is said to have given very satisfactory results. The great advantage of crankless engines, providing a full and satisfactory reliable performance can be obtained, lies in the fact that they may be built so as to be substantially free of vibration and are expected to be economical in respect to fuel consumption. Another novel type of engine is represented by the one invented by W. H. Smith Whaley and built by the Sun Shipbuilding and Dry Dock Company. This engine differs from other heavy-oil engines by the fact that the cylinder clearance at the time of the fuel injection is opened by a piston valve communicating with a static receiver having many times the capacity of the cylinder clearance, the piston valve staying open as long as the fuel is being injected. It is claimed that by these means a much greater output and more economical operation are secured. A single-acting four-cylinder two-cycle machine rated at 750 horse power has been built and it is said that it weighs only about 90 pounds per horse power, a figure which would represent a substantial improvement on the current practice in marine engine design.

Materials for Cylinders.—In the past Diesel engine designers had to contend with the difficulty of finding proper materials for cylinders. Ordinary cast iron did not seem to stand up under the combination of temperature and stresses which were encountered in the operation of Diesel engine cylinders and there were certain objections, not insuperable, but serious, to the use of steel cylinders. Judging by information which is coming through from England there is a chance that this particular problem will be solved by new types of cast iron, among others by so-called Perlit cast iron which is cast in carefully pre-heated moulds from a melt containing definite proportions of carbon and silicon. This is but one of the instances where mechanical engineering is materially assisted by progress in metallurgy and chemistry. Other instances of this coöperation between science and branches of engineering will be indicated in the sections dealing with fuels and motor-car engineering.

FUELS

Fuel Resources. — Fuel consumption of modern industrial nations and in particular the United States which is foremost in this respect is becoming so enormous that grave doubts are entertained as to the ability of the resources in sight to satisfy them long. Not only this, but with the demand for fuels growing at an unprecedented rate the prices are also tending to increase alarmingly. Some thirty years ago gasoline was a drug on the market and was treated by oil refineries as a nuisance to be got rid of. Today if it had not been for the so-called cracking processes which permit to double the amount of gasoline recovered from oil there would not have been enough to go around. Furthermore, the Diesel and other types of oil engines are rushing in, making demands on the same sources of fuel which are needed for motor vehicles and possibly coming aviation. In America in particular oil firing has made substantial progress in steel manufacture and industrial firing. Of late it has been extensively adopted for heating in large office buildings and apartment houses and now, owing to recurrent shortages of anthracite, is beginning to make its way into domestic firing.

At the same time great improvements in power-plant engineering have made it possible to burn with substantially equal efficiency and economy practically any carbon-containing material (short of graphite); and lignites, brown coals, bituminous coal, both high and low volatile, semi coke and even coke can be burned in appropriate furnaces if only a reliable source of supply at a suitable price can be found.

Coal By-Products. — Under these conditions an effort to recover from coal the more valuable by-products, especially such as could be used in internal-combustion engines, has been natural. High temperature carbonization of coal, in which are recovered gas (such as would burn on gas stoves), tar, and residual coke, has been known for more than one hundred years. The efficiency of conversion in the high-temperature carbonization process has been, however, such as to make it impractical for any purpose except town gas manufacture. It has been found at a comparatively early date that by lowering the temperature of carbonization some 600 degrees Fahrenheit, it became possible to produce from coal ammonia (when the nitrogen content of the coal was sufficient), liquid oils (which were usable in internal-combustion engines and, as by-products), gas and coke (both of which could be applied industrially). Notwithstanding the apparent simplicity of the process, however, hitherto no complete commercial success has been attained, though in the past year a great step forward has been taken, largely because of a clearer comprehension of the principles and chemical reactions underlying low-temperature coal carbonization.

The Maclaurin process, the primary purpose of which was to produce a smokeless fuel, has been developed to the point where the Gas Department of the Glasgow Corporation is erecting a battery of five Maclaurin producers. In Germany low carbonization of coal in revolving retorts is already being practiced on a semi-commercial scale. The interesting feature in this German arrangement is that the coal retort consists of two drums, fresh coal entering at the bottom of the inner drum, passing up to the top and being pre-heated in the course of this operation. The actual carbonization takes place during the downward movement of the coal between the inside and the outside drums. In addition to this simple process in which coal alone is treated, other processes have been developed of a more complicated nature. In the Bergius process, powdered coal is subjected to high pressure and temperature with agitation in an atmosphere of hydrogen. This is done in several steps with the result that a partial reduction to motor fuel is obtained. Comparatively little is known as to the cost of this process and as to whether the motor fuel can compete with gasoline where it is as cheap as in this country.

The work on synthetic motor fuels has been ceaselessly going on in the past year. It is reported that Dr. Fischer, in Germany, succeeded in producing by the catalytic treatment of carbon monoxide under heavy pressure a fuel which he calls Synthol. Tests were made with it in a motor cycle and it is claimed that a good performance was obtained. The Synthol is really a mixture of various alcohols ranging from ethyl and methyl alcohols to the alcohols containing up to nine carbons. The production of this fuel is in many respects similar to synthetic production of methanol or wood alcohol which caused a good deal of excitement in this country in the early part of the past year.

Alcohol as a Fuel.—Increased attention is also being paid to the possibilities of alcohol as a fuel. In the United States this question is not arousing interest, first because of the availability of cheap gasoline and second, because of the obvious difficulties in distributing an alcohol fuel under the restrictive legislation resulting from the Eighteenth Amendment. In England, however, the question of producing a motor fuel from home grown materials is a very live one. The Jerusalem artichoke appears to be the most promising. From experiments made on a semi-technical scale by the British Department of Scientific and Industrial Research it appears that the yield of about 18.7 British gallons of ninety-five per cent. alcohol is possible per ton of tubers. Furthermore, by a bacillus process butyl alcohol and acetone (both valuable in chemical engineering) may be obtained. By a fermentation of the tubers by yeast and the action of an organism belonging to the bacillus butylicus, liquor is obtained consisting of seventy per cent. of grain alcohol, ten per cent. of acetone and twenty per cent. of butyl alcohol. It has been further found that by means of suitable treatment a cellulose can be prepared from artichoke stalks. Jerusalem artichokes can be grown in enormous quantities, not only in England proper, but in many of its colonial possessions.

LOCOMOTIVES

Steam Engines.—Up to a few years ago the steam locomotive had undivided sway in the transportation system and it looked as if the reciprocating engine of the type then existing (that means comparatively low steam pressure, simple design, with little attempt at economy in fuel) had come to stay definitely. Within the last few years, however, partly as a result of the rapid increase in the cost of fuel and also through developments in the power-plant field, signs have appeared that if the reciprocating steam engine wants to remain the chief type of power plant on locomotives it cannot do it without a fight. The electric locomotive has, of course, shown some very remarkable performances both in the way of economy of operation and ability to handle enormous loads over difficult grades. Today, however, it is not a very serious competitor of the steam locomotive because it would cost many billions of dollars to electrify the American railroad system and there is little likelihood that any attempt to do so on a broad scale would be now undertaken. There have been, however, other developments which are of vital interest to railroad engineers.

Within the last couple of years, in England, Ramsay and, in Sweden, Ljungström have built locomotives propelled by steam turbines and the Swedish locomotive not only successfully operated on home railroads, but found its way experimentally on to some of the foreign systems (e.g., Argentina). Last year, the Krupp Company in Germany also entered the turbine locomotive field and while none of these has yet proved the claims made for the turbine locomotives, essential and promising progress has been made.

The reciprocating steam locomotive is threatened from another angle and that is by the oil-engine type. Referring particularly to American developments the following deserve special attention. The Ingersoll-Rand Company in coöperation with the General Electric Company have placed on the market an oil-engine electric locomotive, particularly adapted for switch service. This has been tested for a considerable time on the New York Central Lines and has recently been adopted to some extent by other railroads. The Baldwin Locomotive Works also entered this field with a locomotive equipped with a Knudsen engine and other locomotive companies are experimenting with the same idea.

Locomotive Improvement.—It has often before happened in engineering that makers of a certain design were jogging along without any sincere attempt at improvements simply because there was no competition. When competition arose an effort at improvement was made and the industry was benefited. The introduction of electric light largely served to eliminate the old flickering open gas flame and to replace it by the beautiful incandescent mantle flame. The same is happening in the locomotive field. On one hand greater attention is being devoted to the three-cylinder locomotive type which until comparatively recently was not looked upon favorably by many engineers. It has been shown, however, in tests made by the Pennsylvania Railroad for the Missouri Pacific that the three-cylinder locomotive is much better balanced than the old two cylinder and promises to be more economical in operation. A still more radical step in the same direction was taken, however, by the Delaware and Hudson Railroad with the Horatio Allen locomotive in which the pressure of 350 pounds as compared with the former standard pressure of 200 pounds is used. It is calculated that the use of the higher pressure will save about one-third of the fuel now used on locomotives of similar capacity. The locomotive has already been tried in both passenger and freight service and has given every proof of being a development carrying great promise.

A test made last year shows the high stage of reliability which modern locomotives have reached on American railroads. A locomotive recently made the run from Harmon, thirty miles north of New York, to Chicago and return with no other attention given it than supply of fuel, water and oil. On some railroads locomotives are regularly taking runs of over five hundred miles without being detached from the train.

Locomotive Size.—Already several years ago a claim was made that steam locomotives have reached their ultimate dimensions. The width of the largest locomotives used and the height have become such that nothing more could be added without making it impossible for the locomotive to pass through existing tunnels. So great was the growth of the locomotives upwards that the stack has practically disappeared, at least with the locomotive seen from the outside. The present indications are, however, that in at least one direction in which there doesn't seem to be any limit, the locomotive continues to grow, and that is lengthwise. The Garratt Locomotive, built in the past year for the London and Northeastern Railway, is an enormous machine consisting of two 2-8-0 engines, each of the three-cylinder type. The boiler for this huge machine is seven feet in diameter and the tractive effort is equal to that of two ordinary freight-train engines. The locomotive is to handle trains weighing about 1,000 tons on a sharp upward grade (with 2 miles at 1 in 40 up) and is to replace three working engines used at present.

Another enormous machine is the modified Fairlie locomotive built by British works for the South African Government Railways. This is a locomotive of the articulated type and consists of two units working as bogies carrying a cradle on which is mounted a boiler. This locomotive again is to haul enormous trains over difficult grades (over some parts of the line the grades are 1 in 55 with 528 feet radius curves).

MOTOR CAR ENGINEERING

Balloon Tires.—The past year was both fertile of new developments and promising of still greater developments in the automobile industry. The introduction of the balloon tire in the previous year has brought a whole flock of new problems to the automobile engineer. One of these had to do with the tendency of balloon equipped tires to "shimmy," which means, to obtain a side-to-side sway, especially noticeable to people driving in such cars for the first time. This problem has not yet been completely solved although better study of the subject of balancing has indicated how to handle it.

Compression Ratio of Engines.—During the war it was found to be necessary to increase the power output of aëroplane engines. One obvious way to do it was to raise the compression ratio of the engines, but when this was done various troubles developed, such as pre-ignition and a peculiar knock in the engine, both of which were found to produce ultimately with the higher compression ratio a lower output instead of a greater one. An investigation was started by the engineering department of the Air Service at McCook Field and the staff of the General Motors Research Laboratories, and several ways were found to combat pre-ignition and knock, the former by better cooling of the spark plugs and similar means, and the latter primarily by changes in fuel. It was found on one hand that addition of substantial amounts of such materials as benzol and cyclo-hexane eliminated the knock; on the other hand it was found that the addition of very minute amounts of such materials as iodine produced the same effect. Work was started in the latter direction and a number of substances, some of which were known only as laboratory curiosities, were tried. Ultimately it was found that an alkyl, tetraethyl of lead, had the best result in the elimination of the knock and permitted to use much greater pressures without bringing the engine into distress. This opened visions of smaller and more powerful automobile engines capable of giving perhaps as much as forty per cent. more miles per gallon, and the tetraethyl of lead for a while looked like the beginning of the biggest revolution that the automobile industry has seen.

Then a fog of doubt was dramatically cast over this situation. Some three score of men in the factories of the Standard Oil Company of New Jersey and the DuPont de Nemours Company, making tetraethyl of lead, became poisoned by the lead emanations and developed symptoms of lead insanity. Some of them died, others partially or fully recovered, but the matter created a tremendous stir in the press with the result that a conference was called by the chief of the Health Service of the United States and a committee appointed to investigate the subject of safety of use of tetraethyl of lead in gasoline. This committee has not yet made its report at the time of this writing. In the meantime, however, the sale of "lead gasoline" has been voluntarily stopped by its manufacturers.

Gear Shifting.—One of the nuisances of automobile running, namely, gear shifting, seems to be on the way to elimination. Several devices have been recently proposed, chiefly in Europe, and have shown sufficient promise to indicate that the time is not far off when the present gear shift will be done away with.

Air and Oil Cleaners. — Supercharging has become a practically standard part of the racing automobile. It does not seem, however, that at least in its present shape, it may be applied to commercial cars. On the other hand, there has been a remarkable increase in the adoption as standard equipment of such devices as air cleaners and particularly oil cleaners. This latter is going to contribute materially to increasing the life of the engine and helping maintain it in good condition. There has been also increased attention given to the matter of vibration which led to the adoption of crank-shaft balancers by several prominent manufacturers.

HYDRAULIC ENGINEERING

New Hydroelectric Developments.—Just prior to the war the practice in water-turbine design seemed to have been completely standardized. It would be too long to tell the reasons for the change that came about within the last few years. The result was, however, that the development of this art has taken on new life and has already been revolutionized in many respects, with other and perhaps still greater changes coming. Hydroelectric engineering in America has attained a surprisingly high stage of development. The efficiencies which are regularly secured today under operating conditions by both the water end and the electrical end of the plants are truly amazing. The Niagara Falls Power Company installed a 65,000 kilo-volt-ampere generator driven by a 70,000 horse power hydraulic turbine with a guaranteed efficiency of 98.1 per cent. at full load on the generator, and tests have shown that this guarantee is well maintained. The machine has a total weight of 1,500,000 pounds and the total height from the floor to the top of the generator is 26 feet and 4½ inches. So big and heavy is the machine that it had to be assembled on the spot as there was no way of transporting it from the factory and the wheels have for a short period actually developed 84,000 horse power.

Muscle Shoals.—At Muscle Shoals a hydroelectric installation is under way, and its total capacity will amount to 610,000 horse power which will make Muscle Shoals the most powerful hydroelectric station in the United States. Four generators are now built for that plant with a rating of 32,500 kilo-volt-ampere designed for a guaranteed efficiency of 97.9 per cent. at full load. One way of giving an idea of the size of these generators may be stated by the fact that approximately 100,000 cubic feet of air per hour will be required for cooling each unit. At the Minnesota Power and Light Company's new hydroelectric development on the St. Louis River there has been put in an unusual type of vertical generator. Notwithstanding the fact that it is to develop 15,000 kilo-volt-amperes, the whole plant is built with an idea of making it a one-man station, the operating room being so arranged that the operator can watch the governor, exciters, auxiliaries and various gauges in connection with the generator unit.

High Efficiencies.—The remarkably high efficiencies both at the generator end and the hydraulic wheel have not just "growed up" like Topsy. They were the result of expensive research, of hard work and introduction in modern installations of a number of refinements in the design of the main plant and auxiliaries. There are no data available to enable one to make a comparison of the cost per kilowatt of modern installations and the less efficient plants of ten years ago. That this cost has gone up not only because of the general rise of price level, but because of the more elaborate equipment of the modern plant there can be no question. On the face of it it would appear that this greater cost is commercially justified as otherwise the new types of plants would probably not have been adopted, and yet one cannot help wondering as to whether or not we have gone too fast in an effort to obtain maximum efficiency, possibly at the cost of losses elsewhere. For example, it would appear that in many places slower and cheaper turbines might have done just as well as, if not better than, the faster types on which the buyers of the equipment insisted.

There has been also a growing feeling that unnecessarily elaborate governing devices are installed in modern hydroelectric plants with the result that not only is the cost of the installation inordinately increased but even the chief purpose of governing, that is, securing uniform and safer operation, is defeated at times where the governors are made too sensitive.

REFRIGERATION

Better Operation in Plants.—In this field a large amount of work was done towards the improvement of operation of existing plants. While in no wise spectacular it is unquestionably useful and will save the consumers in industry considerable sums. The most important has been along the lines of further investigation of the thermodynamic properties of ammonia vapor carried out principally by the United States Bureau of Standards.

Industrially this year has seen the definite coming into its own of the domestic refrigeration. Domestic refrigeration apparatus has apparently reached the stage of perfection, in the way of economy of operation and reliability, where the companies are no more afraid of pushing its sales on a large scale. While there are still many difficulties in the way, chiefly of a commercial nature, there is little question as to "ice by wire" having seriously come to threaten the business of the iceman. All of this domestic refrigerating machinery is electrically driven and operates with heat exchange media which are non-explosive and non-poisonous.

New Apparatus.—The only significant development in the way of new apparatus is the Platen-Munters refrigerator, of interest because it has no moving parts at all. The only motive force for the whole apparatus is derived through the heating coil and by the application of heat to this coil the refrigeration desired is obtained in another portion of the machine. There has not been sufficient experience with this device yet to determine how it compares with the more standard refrigerating apparatus (compressor operated) in the way of economy in apparent consumption and reliability.

AUTOMOTIVE ENGINEERING

By H. L. Horning
Waukesha Motor Company

Engines. — In automobiles and trucks, two cylinder engines have practically disappeared, there being one very successful two cylinder engine, and four cylinder engines are giving way to six cylinder engines in trucks in some services. This tendency has developed in all sizes of equipment. The year 1925 may be designated as the six cylinder year for during this period marked inroads have been made by small six cylinder engines into the sales of four cylinder cars, and the cost of production of small light speed six cylinder engines has been brought into close competition with fours. On the other end of the scale, automotive engineering has made great strides in producing reliable high speed sizes, of a large size, for motor buses and rail cars. These engines of high horse power are essential to meet the demand of the public for bus service equaling motor car performance.

Tendencies.—The general tendency of design has been towards smaller, high speed engines, lower ratio of rear axle to engine speed and towards six cylinder engines. Cast in one piece cylinder and crankcase is prevalent in motor car engines, and buses. The tendency is towards detachable cylinders, cylinder heads and very deep crankcases. Crankshafts are growing in size and stiffness and bearings are large in diameter but shorter in width and in many cases the stiffness of shaft has not only resulted in much smoother running, but also in the satisfactory operations of crankshaft, main and rod bearings of much less projected area. The force feed lubrication through the shaft is growing in popularity and is almost a standard among the better and moderate priced parts.

There is a distinct tendency away from long stroke engines where smoothness of running, reliability and low cost are desired. Developments in better shaped combustion chambers make this possible and the difference in economy and power of long stroke versus short stroke and small versus large engines has been wiped out by considerations of better mechanical design and a better application of the laws of thermodynamics. The public demand is for high acceleration and deceleration. The engineers have met the acceleration by the adoption of high compression, compact high turbulence head engines, hot spot manifolds and carburetors giving high power mixtures for acceleration purposes and at full load and high rear axle ratios and low vehicle weight.

Fuels.—Automotive engineering has for the past decade given great study to this process of combustion in the cylinder of the engine as a hopeful means of increasing the power output and economy of operation. During this year effective efforts have been made to market fuels which were the results of the highest order of research. By the addition of many kinds of stabilizers, which the Automotive Industry has discovered, the present fuels have been prevented from developing explosive waves in cylinders of engines. The marketing of anti-knock fuels is preparing the way for engines of higher compression; thus taking advantage of the higher efficiencies to be attained by higher expansion ratios.

The year 1925 sees the dawn of the day of Diesel engines for all services. During this year there have been many new developments in this type of internal combustion engines. With the rapid development of the sciences of chemistry and physics there is a growing understanding among engineers of the process of combustion and the laws of thermodynamics, and sub-atomic physics is pointing the way to the most outstanding developments in internal combustion engines of the second quarter of the Twentieth Century. Today the highest thermal efficiencies of these engines approach 38 per cent. whereas in common practice motor cars go as low as 5 per cent. utilization of the energy of the fuel. Developments of the year in our best laboratories indicate that soon it may be possible to attain efficiencies on the road of 15 per cent. to 20 per cent.

Gasoline. — The Society of Automotive Engineers has through a coöperative fuel test conducted over the last five years by the United States Bureau of Standards and with the support of the American Petroleum Institute and the National Automobile Chamber of Commerce, developed important facts concerning the availability of power from commercial gasolines and these tests have pointed the way to modification in the specification of gasoline which has resulted in vast increases in the supply of gasoline from the available crude. Through these researches in fuels the general methods of production of gasoline have been indirectly affected and gasolines of greater utility are being produced. During these tests 1,000,000,000 gallons of gasoline of a wholesale $100,000,000 value have been added to that available from the crude by old specifications.

Reducing Wear.—The greatest engineering advances have come about with the object of increasing the life of the wearing parts. Among these may be mentioned the growing use of air cleaners to remove dust from the mixture and to increase the life of cylinders, pistons and rings. Another improvement is the filtering of the used lubricating oil, thus removing the products of wear and combustion and oil disintegration. Means have been adopted for filtering the gasoline, thus the automobile engineer has gone a long way in 1925 to deliver clean oil, fuel and air to the engine. The engineers have learned, through the coöperative fuel tests, to control dilution of the crankcase oil and methods of removing this are common. Most engines are so designed and are being sold that dilution is not a problem in 1926 cars.

Clutches and Transmissions.—The multiple disc and single plate clutch are practically standard, the cone clutch having almost disappeared. In transmissions, no great improvements have appeared in motor cars, however, in motor trucks and buses, transmissions giving a wide range of ratios have brought about higher speeds of the vehicle without corresponding depreciation of engines. Due to a wide adoption of high gear ratios on buses these vehicles make gasoline and oil mileages, which were not possible for heavy cars a few years previous. This is a great development, although in motor cars the tendency is the opposite owing to the use of smaller high speed six engines; the necessity of low gear ratio has grown in the last year. A number of means are being developed to provide a noiseless over-gear and one of the great improvements pending in the industry is the general adoption of a quiet over-gear.

Tires.—Perhaps the most outstanding of all the recent improvements has been the balloon and semi-balloon tires. These have been widely adopted in the short space of three years and have added more than any one item to the comfort of riding on all roads and have made the small short wheel base car more popular than ever and hastened the day of the more general use of small cars. With the vast increase in automobiles and the gradually increasing traffic density, the increasing difficulty of maneuver in the cities and the increasing mileage of good roads, the day of the small car has arrived and the balloon tires are making it increasingly popular. While the comfort has greatly added to the popularity of the balloon tire its greatest usefulness is in preserving the mechanism of cars from the road shocks. It never will be known how much this has added to the life of cars and the car mileage, and the economic value is beyond the wildest guess.

Rear Axles.—There has been no great advance in rear axles, but all types of vehicles are being suspended on better springs. Better riding qualities are being developed on all sizes of vehicles and a great improvement has been made, particularly in small short wheel base cars. The widespread use of four wheel brakes has also marked the public demand for high touring and city speeds.

New Developments and Services.—One of the outstanding developments of the year has been that of motor buses, the production of these having practically doubled. Buses of all sizes and types have developed rapidly and there have been many failures of designs, much experience gained and several successful buses developed. Starting five years ago in city service, buses using 300 cubic inch engines and a 31 passenger capacity have grown in service to engines of 1000 cubic inch displacement and 60 passenger bodies, weighing empty 16,000 lbs. These buses have increased in speed from 25 miles per hour to 70 miles per hour.

Gas-Electric Buses.—One of the most interesting developments during the year is the use of gas-electric drives in buses and there have been several large installations of this type of vehicle. This development is in its infancy and much research is ahead of it. In this drive a generator is directly driven by the engine and the current from this is developed and fed to electric motors, propelling the rear wheels. The main objects of this type of drive are a smoother get-away, a quicker acceleration and an ease in handling. This type of drive appeals to the electric railway interests whose organizations are equipped through training to handle this type of apparatus.

The country has witnessed during the year a complete acceptance of the motor car, truck and bus as short haul utilities by railway interests, and street railway companies have taken up the bus and taxicab as a means of meeting the new order of things. Closely related to these developments is the steady growth of gasoline rail-cars for passenger service of short lines which appears certain to develop as rapidly as present equipment can be worn out. Motor boats are developing along all lines and power types of internal combustion engines and are used for many new services.

Statistics of Industry.—The year 1925 ended a quarter of a century in which the World's largest industry was developed. The automotive industry in America is the foremost in the World of all the great domestic industries. On January 1, 1926, there were registered in the United States, 20,435,000 motor cars and motor trucks and buses. During this year 3,883,000 motor cars have been produced and 420,000 trucks. The exports of American motor cars and trucks during 1925 have reached 540,000 units which together with the domestic market was the largest in the history of the industry in number and in value. The wholesale value of the products of the automotive industry reached the enormous sum of $4,500,000,000 in 1925.

Many industries have been revolutionized in earnings and output and character of product by the automotive industry. As a measure of these the following statistics cover a few of the commodities which are used by the automotive industry and its products:

12 per cent. of the total production of steel.
47 per cent. of the total production of aluminum.
54 per cent. of the total production of plate glass.
70 per cent. of the total production of upholstering leather.
82 per cent. of the total consumption of rubber.
16 per cent. of the total consumption of lumber.
8 per cent. of the total consumption of copper.

9.5 per cent. of the total consumption of tin.
10 per cent. of the total consumption of lead.
3.8 per cent. of the total consumption of zinc.
82 per cent. of the total consumption of gasoline.
55 per cent. of the total consumption of lubricating oil.

So we may go on and trace the influence of the automobile on good roads and the allied industries, and the general increase in transportation with its activities.

Passenger traffic between all adjacent cities has vastly increased and the traffic from country to city multiplied many times.

Economic Lessons of the Industry.—The reason for the very rapid growth of the industry has been the vast buying power of America and the wealth-producing power of the automotive products. There is no stratum of society which is not beneficially affected by the advent of automotive transportation. There are few industries on which the nation depends for its wealth which have not been speeded up and their earning power greatly increased by automotive products. Vast areas have been developed and made available for homes and the congestion of city dwellers has been solved, as well as the dwellers on the farms and remote sections of the country freed from their isolation. It is impossible to estimate the values added to suburban and farm land by the increasing use of transportation of motor car and truck.

Cost of Production.—The automotive industry has attained its greatest achievements by the perfection of low cost methods of production of intricate machinery and has led the world in proving the economic principle that vast improvements in cost invested in further time-saving devices and systems, together with lowering of prices to the public as fast as possible, broaden the market and develop an industry and ultimately bring greater profits than excessive unit profits. The industry has proven that the greatest utility is attained when every class can afford its products. There is no industry that has given the public so much for its money, and since the war the buying power of the dollar has gained 60 per cent. in purchasing automotive apparatus.

COMMERCIAL AVIATION

By Archibald Black
Consulting Air-Transport Engineer

General.—The most outstanding developments on the constructive side in aëronautics in 1925 have been the further pushing up of certain world records; continued progress in helicopter development; successful demonstration of anti-stalling devices for airplanes; further improvement in night-flying equipment and operations; the development of air-cooled engines of larger power than heretofore considered practicable; and last, but by no means least, the sudden awakening to the commercial possibilities of the airplane in the United States. On the negative side of the slate might be noted the destruction of the U. S. S. *Shenandoah*, with the loss of several lives, through unusually severe storm conditions during a flight over Ohio. This accident was a severe blow to the advocates of the airship for both military and commercial purposes but the effect will only be temporary. Airship designers are now studying the problems which this accident brought to the forefront. Work in the various fields of research affecting aëronautics has been constantly carried on throughout the world, the United States having rendered a very creditable account of itself in all branches.

Air Transport.—More or less steady improvement has been shown in the development of air transport throughout the world. This improvement might be credited mainly to the educational effect of continued operation rather than to technical advances in equipment. While constantly fluctuating, the volume of traffic generally tends to increase and a few of the European airlines are nearing the position of self support. In all countries other than the United States it has become the accepted policy to subsidize privately operated commercial air-transport routes. In this country, due largely to the prevalence of public opposition to the principle of subsidies, a different course has been followed. Instead of subsidizing private operators the government itself entered the field in 1918 with the initiation of an Air Mail Service by the Post Office Department. This service, which has been gradually expanded since its inception, does not cover its operating charges but it is regarded as a practical laboratory for the development of equipment and information on operating conditions. As such it is rendering a very useful service in addition to greatly advancing the delivery of certain mails. As the result of the European and American policies regarding the development of air transport, Europe has many privately operated and few government routes while the United States has very few privately operated lines but a very active government-operated Air Mail Service. Compared upon a rational basis, that of mileage flown, in the absence of any better one, this country stands about first or second among the nations of the world. This is, of course, contrary to the prevailing impression created by comparisons on the basis of numbers of routes rather than their operations.

Significant Air Transport Developments. Early in 1925 the Ford Motor Company, which had been interested in aëronautics since 1918 or 1919, started the operation of some airplane routes between certain of its plants. This move was followed closely by the announcement of plans of a group of nationally known business men to enter the air transport field on a large scale under the name of National Air Transport, Inc. The two announcements appeared to take hold of public sentiment in a manner never before possible, and very important moves in airline development are indicated as a result. Among those directly resulting from this change of sentiment was agitation for the establishment of air routes for the transport of mail, packages and possibly passengers, under the terms of the Kelly Bill. Responding to this expression the Post Office Department planned the establishment of eight such routes for 1926. Up to the present, contracts have been awarded for operation of five of the proposed lines while others are under consideration. Thus the United States seems assured of the creation of a comprehensive system of air-transport lines immediately.

Night and Fog Flying Equipment.—The most noteworthy work in the field of night-flying equipment is probably the development of electrical apparatus of lower initial cost combined with some improvement in reliability. Experimental installations of fog-piercing lights have been installed and are now being tested in the United States and England. The results are said to be very promising but the work has not yet reached the stage where final conclusions can be drawn. The question of fog being of greater importance in operations in England than in most other countries, particular attention is being given to this problem over there. In addition to the fog-piercing lights alone, experiments are planned using a combination of radio direction finding equipment for locating the landing field and fog-piercing lights for effecting the actual landing. During the year the U. S. Air Mail Service placed in operation its night service between New York and Chicago. While this was not the first scheduled night operation of the U. S. Air Mail Service, it is of particular interest on account of the difficulties involved in the territory flown over. A portion of the route passes through the Allegheny mountains and over some closely wooded areas. While marred by one accident during the several months of operation to date, this route has marked a very important advance in commercial aviation.

Airplane Design and Construction.—Some new types of commercial airplanes were produced which are worthy of special reference. Fokker turned out a three-engined monoplane for passenger or package transport, following his customary construction of plywood wings and steel tube fuselage. This machine is equipped with Wright air-cooled engines and is indicative of the recent trend toward the air-cooled engine in commercial operations. De Havilland, Roe and Beardmore were each active in England in the production of new designs for transport use, while in France Farman continued the "Jabiru" type which has been used on some of the French air routes. In the United States the Curtiss Company developed the "Carrier Pigeon," a transport type for mail and package carriage which is of particular interest because of its adoption by National Air Transport for its proposed routes here. The British are at present working on the design of a freight-carrying airplane to have a carrying capacity of 8¼ pounds of actual pay load per horsepower. This is worthy of note as marking a very important advance over present types which seldom show better than some 4 or 5 pounds. Certain of the military productions are of some interest in connection with civil activities, one of the notable productions in this class being the Loening amphibian. This design incorporated several unusual features including an inverted engine installation. While the inverted engine installation is not entirely a new idea it is one which has been given very limited consideration previously. Having many advantages, particularly from the viewpoint of propeller clearance and visibility, this arrangement is likely to become more popular among the airplane designers in future. The Curtiss 1925 Pulitzer Racers and also the Gloster-Napier, Supermarine-Napier and the Macci Schneider Cup Racers are all either military designs or have a strong military tinge. Yet they are of some interest in connection with civil activities through pointing the way to further reduction of resistance and consequent increase in speed.

Airships.—Activity in the airship field was marred by the loss of the *Shenandoah* previously mentioned. While there is no doubt that airship development will be seriously affected by this accident, the work will certainly be carried on. It seems questionable if rigid airships can be designed to withstand such extreme conditions as the *Shenandoah* encountered but the accident will result in provision of greater strength and more power in future designs. The combination of the two changes will go toward eliminating the danger of a repetition of the accident. While the increase in strength will allow the airship to withstand greater storms, the increased power will enable it to avoid storm areas more readily. As indicating the continued faith in the rigid airship, the Bureau of Aeronautics is understood to favor appropriations to continue its work in this field while the British have given no indication of abandoning their stupendous airship operating scheme. In the meantime work on non-rigid and semi-rigid airships is being continued unaffected by the disaster. One of the interesting developments of the year in the airship field was the design and erection of a novel form of airship mooring mast by the Ford Motor Company at Dearborn, Mich.

Engines.—The most striking development in the engine field is probably the marked return to favor of the air-cooled engine. This type is now being developed in sizes which would, a few years ago, have been considered well beyond the practicable size for adequate cooling. The tendency is toward still larger sizes and the near future will probably see the production of air-cooled engines developing well over 500, and possibly over 600, horsepower. Both in the United States and in Europe this type of engine has already been developed in sizes up to 400 horsepower and the larger units in this range are undergoing service tests. Important advances have been made in extending the life of all types of engines and some airplane engines are known to have been in service, with the usual overhauls, over 1,350 hours. This is equivalent to about 135,000 miles of flying. A considerable amount of experimental work and research is being carried out on various engine problems. Several very novel types of internal combustion engines are being tested to determine their practicability and attempts are being made to develop heavy oil engines of the Diesel type for aircraft use. A sleeve valve engine of 450 horsepower has been built experimentally in England and is being tested. Reduction in the weight-horsepower ratio has been constantly carried on and some very successful American designed and built engines weigh as little as 1.2 and 1.32 pounds per horsepower. As a direct result of the outstanding success of American designers, the United States is now exporting instead of importing engines. The recognition given to our leadership in this regard is even more strikingly shown in the number of foreign transport and racing types which are being equipped with American engines.

Miscellaneous.—Instrument development has been carried on to keep pace with the development of aircraft and air speed indicators are now available which read up to 350 miles per hour. In the United States the vertical form of airplane instrument is coming into favor and this type allows the use of a very compact arrangement on the instrument board. In the field of aërial photography technical progress was made chiefly along the lines of greater independence of lighting conditions, greater camera range and increased accuracy in surveying and mapping. The stereoscopic method of obtaining elevation contours from aërial photographs has now reached the stage where a high degree of accuracy is obtainable. In the field of wind-tunnel research a large volume of additional information has become available but this took the form of small advances throughout rather than any outstanding or radical improvements. However, the development of still higher wing lifts through the use of auxiliary flaps, etc., is worthy of mention, as are also the experiments with vertical fins placed near the tips of the wings which were found to increase lift somewhat.

WORLD AIR TRANSPORT IN 1924-25

MILEAGE OF SCHEDULED SERVICES OVER TWELVE-MONTH PERIODS AS NEARLY AS POSSIBLE COMPARABLE.

Country of Registry	Miles Flown	Remarks
Australia	262,895	
Belgium	160,000 *	
Great Britain..	890,000	
Canada	294,778	Includes some non-scheduled operations.
Colombia	169,500	
Czechoslovakia.	126,400	
France	2,249,000	
Germany	1,860,000 *	Considerable duplication of mileage included.
Hungary	225,410	
Italy	No lines running in 1924	
Netherlands ..	482,800	
New Zealand ..	6,352	
Poland	124,203	
Soviet Russia..	288,600	
Sweden	69,280 †	Unofficial estimate.
Switzerland ..	268,400	Considerable duplication of mileage included.
United States..	2,220,761 †	Including air mail service but no non-scheduled operations.
World total .	9,698,379	

All data from British official reports except as noted.

* F. B. Austin in *Saturday Evening Post*, 1925.

† Estimated from miscellaneous sources.

Non-scheduled mileage in U. S. estimated at 857,048 additional; in Great Britain 139,000 additional; figures not available for other countries.

RECENT OUTSTANDING WORLD RECORDS

COMPILED BY E. L. JONES.

(No important changes in balloon or airship records.)

AIRPLANES (Without Refueling in Flight)

Duration and Distance

H. M. S.	KMS.	MILES	
45:11:59	4,400	2,734	Drouhin and Landry (Farman-Farman 450), Étampes-Chartres, France, Aug. 7-9, 1925.

Distance Cross-country, Air Line

KMS.	MILES	
3,166.3	1,967.26	Captains Arrachart and Lemaitre (Breguet 19B2-Renault 480), Étampes to Cisneros, France, Feb. 3-4, 1925.

Altitude

METERS	FEET	
12,066	39,586	Callizo (Gourdou Lesseure-Hispano 300), Villacoublay, France, Oct. 10, 1924.

Maximum Speed

K. P. H.	M. P. H.	
448.171	278.480	Warrant Officer Bonnett (Ferbois-Hispano 550), Istres, France, Dec. 11, 1924.

Speed for Specified Distances

	K. P. H.	M. P. H.	
100 kilometers:	401.279	249.342	Lt. Cyrus Bettis, U. S. A. (Curtiss R3C1-V1400 Curtiss 619), Mitchel Field, N. Y., Oct. 12, 1925.

Useful Load Carried

Duration

	H. M. S.	
Pilot and 250 to 500 kilos.:	9:11:53.4	Lt. H. R. Harris, U. S. A. (Douglas DT2-Liberty 400), Dayton, Ohio, June 28, 1924.
Pilot and 2,000 to 4,000 kilos.:	1:47:10.5	Lt. H. R. Harris, U. S. A., and D. Culver (Barling-6 Lib. 400), Dayton, Ohio, Oct. 3, 1924.

Distance

	KIL.	MILES	
Pilot and 250 to 500 kilos.:	950.0	590.3	Lt. H. R. Harris, U. S. A. (Douglas DT2-Lib. 400), Dayton, Ohio, June 28, 1924.
Pilot and 1,000 kilos.:	200.0	124.27	Fernand Lasne (Nieuport Delage 42C1-Hispano 500), Villesauvage-LaMarmogne, France, Oct. 16, 1925.

Altitude

	METERS	FEET	
Pilot and 250 kilos.:	8,980	29,462	Lt. H. R. Harris, U. S. A. (TP1-Lib. 400), Dayton, Ohio, Mar. 27, 1924.
Pilot and 4,000 kilos.:	1,363	4,472	Lt. H. R. Harris, U. S. A., and D. Culver (Barling-6 Lib. 400), Dayton, Ohio, Oct. 3, 1924.

Speed for Specified Distances

PILOT AND 250 KILOS

	K. P. H.	M. P. H.	H. M. S.	
100 kilometers:	281.030	174.623	———	Fernand Lasne (Nieuport Delage-Hispano 500), Villesauvage-La Marmogne, France, Oct. 7, 1925.

PILOT AND 500 KILOS

100 kilometers:	281.030	174.622	———	Fernand Lasne (Nieuport Delage-Hispano 500), Villesauvage-La Marmogne, France, Oct. 7, 1925.

PILOT AND 1000 KILOS

100 kilometers:	246.440	153.13	———	F. Lasne (Nieuport Delage 42C1-Hispano 500), Villesauvage-La Marmogne, France, Oct. 16, 1925.

AIRPLANES (With Refueling in Flight)

Duration

H. M. S.	
37:15:14.8	Lts. L. H. Smith and J. P. Richter, U. S. A. (DH4B-Lib. 400), San Diego, Calif., Aug. 27-28, 1923.

Distance

KILOMS.	MILES	
5,300	3,293.26	Lts. L. H. Smith and J. P. Richter, U. S. A. (DH4B-Lib. 400), San Diego, Calif., Aug. 27-28, 1923.

Speed for Specified Distances

	K. P. H.	M. P. H.	
2,500 kilometers:	142.78	88.72	Lts. L. H. Smith and J. P. Richter, U. S. A. (DH4B-Lib. 400), San Diego, Calif., Aug. 27-28, 1923.

SEAPLANES (Without Refueling in Flight)

Duration

H. M. S.	
28 : 35 : 27	Lts. C. H. Schildhauer and J. R. Kyle, U. S. N. (PN9-2 Packard 500), Philadelphia, Pa., May 1-2, 1925.

Distance

KILOMS.	MILES	
1,600	994.19	Lts. F. W. Wead and J. D. Price, U. S. N. (Navy CS2-Wright 585), Washington, D. C., July 11-12, 1924.

Distance Cross-country, Air Line

3,206	1,992	Comdr. John Rodgers, U. S. N., and Lt. Byron J. Connell, U. S. N., and crew of 3 (PN9-2 Packard 1A1500-500), San Pablo Bay, Calif., to near Honolulu, H. T., Aug. 31-Sept. 1, 1925.

Altitude

METERS	FEET	
8,980	29,462	Sadi Lecointe (Nieuport Delage-Hispano 300), Meulan, France, Mar. 11, 1924.

Maximum Speed

K. P. H.	M. P. H.	
395.439	245.713	Lt. James H. Doolittle, U. S. A. (Curtiss R3C2-Curtiss V1400 619), Baltimore, Md., Oct. 27, 1925.

Speed for Specified Distances

	K. P. H.	M. P. H.	
100 kilometers:	377.829	234.772	Lt. James H. Doolittle, U. S. A. (Curtiss R3C2-Curtiss V1400-619), Baltimore, Md., Oct. 26, 1925.

Useful Load Carried

Duration

	H. M. S.	
Pilot and 250 kilos.:	10 : 23 : 58	Lt. H. T. Stanley, U. S. N. (F5L-2 Lib. 400), San Diego, Calif., June 6, 1923.
Pilot and 2,000 kilos.:	1 : 49 : 11.0	Lt. O. B. Hardison, U. S. N. (PN7 2-2 Wright T2 535), Baltimore, Md., Oct. 25, 1924.

Distance

	KILOMS.	MILES	
Pilot and 250 kilos.:	1,102.00	684.64	Karl Lesch (Rohrbach-2 Rolls 360), Sund, Denmark, Oct. 24, 1924.
Pilot and 2,000 kilos.:	253.69	157.63	Guido Guidi (Dornier Wal-2 Rolls 360), Pisa, Italy, Feb. 3, 1925.

Altitude

	METERS	FEET	
Pilot and 250 kilos.:	5,831	19,131	St. Adriano Bacula (Savoia Marchetti S58-Hispano 300), Cesto Calende, Italy, Aug. 25, 1924.
Pilot and 2,000 kilos.:	3,006	9,862	Guido Guidi (Dornier Wal-2 Rolls 360), Pisa, Italy, Feb. 3, 1925.

Speed for Specified Distances

PILOT AND 250 TO 500 KILOS

	K. P. H.	M. P. H.	H. M. S.	
100 to 500 kilometers:	168.523	104.715	———	Guido Guidi (Dornier Wal-2 Rolls 360), Pisa, Italy, Feb. 4, 1925.

PILOT AND 1000 TO 1500 KILOS

	K.P.H.	M.P.H.	H.M.S.	
100 to 500 kilometers:	168.523	104.715	———	Guido Guidi (Dornier Wal-2 Rolls 360), Pisa, Italy, Feb. 4, 1925.

PILOT AND 2000 KILOS

	K.P.H.	M.P.H.	H. M. S.	
100 kilometers:	110.08	68.4	54 : 29 : 55	Lt. O. B. Hardison, U. S. N. (PN7 2-2 Wright T2 535), Baltimore, Md., Oct. 25, 1924.

GLIDERS

Duration

H. M. S.	
10:19:43.4	Commandant Massaux (Poncelet Vivette), Vauville, France, July 26, 1925.

Distance Cross-country, Air Line

METERS	FEET	
8,100	26,575	Lt. Thoret (Bardin), Vauville, France, Aug. 26, 1923.

Altitude

545	1,788	E. Descamps (Dewoitine), Biskra, Algeria, Feb. 7, 1923.

HELICOPTERS

Distance Cross-country, Air Line

METERS	FEET	
736	2,414.69	Pescara (Pescara-Hispano 180), Issy, France, April 18, 1924.

Speed over Specified Distances

Altitude

	METERS	FEET	
Pilot and 200 kilos.:	1.0	3.28	Oehmichen (Oehmichen-Rhone 180), Arbouans, France, Sept. 14, 1924.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

By James Swan

Editor of "Marine Engineering," New York

Conditions.—The extreme depression in world shipping which has prevailed practically throughout the past year has had the effect of reducing commercial shipbuilding to the lowest point it has touched in many years. In addition to this, the disarmament agreement has resulted in taking away from the larger shipyards that which, in America, at least, has been a chief source of income,—the building of large naval vessels. As a result of this condition, many of the yards have devoted their energies to the acquirement of such outside work as their equipment was capable of handling; structural work, forgings, hydraulic turbines and the like; with the result that progressive development in naval architecture and marine engineering has been practically at a standstill.

It is a general experience that in such allied sciences and arts as naval architecture and shipbuilding temporary periods of slackness are taken advantage of for carrying out research or experimental work, not possible when business demands occupy a plant's full capacity. Ships, however, are too expensive to be built for experiment alone; their building must have some commercial justification behind it. While a new vessel may embody certain experimental or tentative features, the transaction of her building is and must be essentially commercial.

Diesel Engines.—Notwithstanding the general adverse conditions which have surrounded it, shipbuilding and engineering have made material advances during the past year. Without doubt the most outstanding feature has been the continued and steadily expanding adoption of Diesel engines for ship propulsion. Heretofore confined in the main to relatively low speed vessels of moderate power, the past year has witnessed the completion of several motor-propelled ships of the ocean liner type, some of them equipped with machinery of over 20,000 collective shaft horsepower. While these vessels have been in service but a short time and their commercial success can only be satisfactorily and finally determined from operating experience extending over a much longer period, the results so far obtained are reported to be eminently satisfactory and there seems to be little reason to doubt that the motor liner has come to stay.

The eventual success of any particular ship must, in practically every case rest upon her overall commercial efficiency; in other words, the first cost with its resulting yearly charges, for interest, depreciation and insurance must enter into the picture as well as the actual operating costs and the savings which may be realized as the result of using some particularly economical form of machinery, such as the Diesel engine.

In this respect, the Diesel owing to its relatively high first cost, has been at somewhat of a disadvantage. While for long voyages at low power it has shown remarkable results, from both the engineering and commercial points of view, on shorter trips with a larger percentage of time spent in port, its advantages are not so apparent. Up to the present, practically all Diesel marine engines have been of the single acting type, a fact in part responsible for their relatively high weight and cost per horsepower developed. So long as powers remained small, this presented no very serious difficulty; but for such large powers as are necessary for passenger liners it became a very great, if not insurmountable, obstacle in the way of the commercial success of this type of machinery. The solution of this difficulty has come, in part at least, with the development of the double acting Diesel with a much larger output per unit of weight and cost than is possible with the single acting type.

Reduction Gears.—The preceding remarks apply to relatively large and heavy engines, coupled directly to the propeller shaft. Recently a number of vessels have appeared in which small, fast running motors, drive the propeller shaft through the medium of mechanical gearing or electric generators and motors. The former type of drive has been considerably developed in Germany, and to some extent in this country. Some form of flexible coupling or hydraulic clutch is advisable, between the motor and the gears, to eliminate shock and torsional vibration, but this system is nevertheless probably the cheapest form of Diesel drive, so far as first cost is concerned. The electric reduction gear has been highly developed in naval work in this country in connection with steam turbines. For services requiring economy at widely varying rates of speed, it is undoubtedly well adapted and offers great possibilities for the future.

More recently electric reduction gears, in conjunction with small Diesel engines, have come into prominence. This system is being highly developed in this country, although the largest power installations so far made are to be found in three fruit steamers built in Great Britain. It is particularly suited for tow boats, owing to its unrivaled maneuvering qualities, and has already been fitted in a number of American vessels of this class, with more in prospect. The Diesel electric drive also offers advantages where considerable power is used for other purposes than propulsion, as in refrigerator ships and oil tankers. Two American oil tankers, fitted with this type of machinery have entered service during the past year, and are reported as being very satisfactory and efficient in every way. Diesel electric drive has been or is being installed in a number of American yachts, formerly propelled by steam power.

Economy of Machinery.—While great advance has in past years been made in the economy of performance of marine steam plants, it is a well known fact that they have been outstripped in this particular by the large shore power stations. This has been due in part to the natural and justifiable conservation of marine engineers, but mainly to the fact that many of the methods in common use on shore are, in their present form, entirely unsuited and impracticable for installation on shipboard.

The rapid advance of the Diesel engine has brought to marine steam engineers, with renewed force, the necessity of increasing the economy of their machinery. As has been already remarked, the cost of Diesel engines, even of the double acting type is high, per unit of power produced, and the question arises whether, in view of its relatively low first cost, the marine steam plant, by the adoption of certain shore powerhouse devices and practices may not be brought reasonably close to a Diesel plant, in overall efficiency.

The path, as pointed out by stationary engineering practice, leads to high steam pressures and superheat, high vacuums and improved condensing apparatus, "stage" feed heating by steam withdrawn from the turbines, reheating of the steam itself and the effective utilization of the waste heat in the boiler uptakes, either for preheating the furnace draft or for feed-water heating.

With the exception of stage feed heating and steam reheating, all of these means of effecting economy of fuel are in more or less limited use in marine plants. High steam pressures predicate the use of watertube boilers. These are already extensively used though not as yet at the pressures obtaining ashore. An American cargo steamer recently completed, uses steam at 250 pounds and 150 degrees superheat and is showing excellent results, though still materially below those of the best shore plants. Additional vessels are contemplated to use steam at 350 pounds and 200 degrees superheat by which a further and material saving will be effected. High vacuums are steadily maintained at sea, but the condenser becomes a constant source of trouble owing to the salt cooling water, since with the high pressure watertube boilers, pure, fresh feedwater is essential. It seems probable that before much higher pressures can be successfully and continuously used at sea some certain means must be devised to produce leakless condensers and thus prevent any salt water from finding its way into the feed system.

Stage feed-heating and steam reheating are entirely practical for machinery running constantly under a given load. Ship machinery runs at varying speeds and has to be frequently reversed and maneuvered. While this may not present insurmountable difficulties, the fitting of such devices would materially add to the complication and crowding of the machinery and therefore appears of doubtful utility from a practical standpoint.

Turning to the utilization of waste heat in the furnace gases, it may be said that moderately heated forced draft has long been in use in marine plants but that recently developed devices pave the way to a much greater preheating of the furnace draft than has heretofore been considered practicable and their very general adoption seems probable.

Practical Application.—The extent to which the various methods outlined may be expected to improve marine steam plant economy, if utilized to the fullest practicable degree, is largely a matter of conjecture. Actual trial alone can satisfactorily determine what can and what cannot be done while at the same time preserving the reliability and ease of operation which are essential to satisfactory shipboard performance. To this end a contract has recently been placed in Great Britain for the construction of a steamer with machinery embodying most if not all of the devices which have been mentioned; the intention being to give them a thorough and exhaustive test under actual service conditions. It is the expectation of the designers of this ship and her machinery, and they are among the very best in Great Britain, that a shaft horsepower will be produced for 0.66 pound of fuel oil. The corresponding figure for a Diesel installation is 0.45 pound but the lesser cost of the steam plant, estimated at approximately 70 per cent. of the Diesel, is expected to largely offset the difference in operating expenses. This experiment is perhaps the most important, in its field, which has been undertaken since the introduction of the steam turbine for ship propulsion, something over 25 years ago, and its outcome is awaited with the greatest interest by shipbuilders and operators, the world over.

Pulverized Coal.—A most notable development in marine engineering during the past year is the work at present going on preparatory to the introduction on shipboard of pulverized coal as a fuel for generating steam. While this type of fuel is already used to a considerable extent ashore, the type of apparatus has been such that the resulting flame was too long to be effectively used in the relatively restricted combustion spaces of a marine boiler. Apparatus has now been devised whereby the flame is shortened without reducing its phenomenal heat-producing properties, and practical trial at sea only awaits the production of a satisfactory grinder for ship's use and the design of air supply and ducts to feed the powdered fuel to the furnace. As very low grade coal can be used and the heat liberation obtained is enormous, it appears practically certain that the marine use of pulverized coal fuel has before it an enormous field of usefulness. It is of interest to note that this development is a peculiarly American one, so far almost entirely confined to this country insofar as ships are concerned.

Contrapropeller.—Turning from the power plant itself, the most notable recent development in ship propulsion has been the practical adoption, in a number of merchant vessels, of what is known as the contrapropeller. In brief this is a device for applying to the ordinary marine propeller certain principles which have long been taken advantage of in water power turbines. By fitting stationary guide blades in front of or behind an ordinary propeller the wake, or water left behind the vessel as she moves forward, is guided to the propeller in such a manner as to increase its efficiency and at the same time draw from the wake and turn to useful account, energy which would otherwise pass astern and be wasted. The contrapropeller has been fitted on 150 foreign (mostly German) and 12 American vessels and a saving of from 10 to 15 per cent. in effective horsepower for a given speed is reported to result from its use. As it can be fitted easily on vessels in service as well as on new ships and is comparatively inexpensive, it is likely to be extensively used, particularly on ships of moderate speed and power.

Bracketless Construction. — The most notable development in hull construction during the past year has been, without doubt, the invention, by Sir Joseph Isherwood, of the "bracketless" system of hull construction for tank steamers. The Isherwood system of longitudinal framing has been in use for many years, and, so far as tank steamers are concerned, has become practically universal. In the past, large brackets have been considered as essential in these vessels to connect the longitudinal hull framing with the stiffeners on the bulkheads forming the several oil carrying tanks or compartments. These brackets are present in large numbers (about 2,500 in a tank steamer of 10,000 tons deadweight capacity), are very heavy, costly to make and fit and rivet in place and a bother to keep oiltight where attached to the bulkheads. By a slight change in arrangement and increase in weight and strength of the general hull framing, it is proposed to do away entirely with the brackets, a much simpler and cheaper hull being the result. The first vessel to be built under this system is now in course of construction and, if the results anticipated are obtained, and there seems to be little doubt that they will be, it is a matter of great importance to the builders and owners of this very large class of commercial vessels. While not an American invention, the bracketless system is of particular interest to the shipping interests of this country, as the American fleet is by far the largest fleet of oil carrying vessels in the world.

Channel System.—Another development in hull construction, of much more restricted use, but still of importance as applicable to the construction of certain large fleets of small vessels—harbor barges, to be specific—is the Ellis Channel System of hull construction, in which the ordinary plated sides, bottom and decks of a "box" barge are replaced by structural channels, riveted flange to flange. Several barges of this description are already in service in New York harbor and should they prove as serviceable as hoped for and if they can be profitably produced at the very low price which characterized those now in use, a considerable activity in their production may be looked for.

Outlook.—The past few months have brought unmistakable signs of a revival of shipbuilding in this country. A considerable amount of new tonnage is under contract or actually in course of construction. Included in this are the two largest commercial vessels ever undertaken on this side of the Atlantic; passenger liners of the very highest type. A very large motor tanker, possibly the largest vessel of this type in the world, was contracted for in the last month of the past year and a number of other vessels are being considered and will, in all probability be contracted for in the near future. While new naval work has been practically at a standstill, two 10,000-ton cruisers, of very high speed are shortly to be laid down, one in a navy yard and the other by a private firm. The machinery for both of these ships, representing a total of about 200,000 shaft horsepower is to be built by contract.

Altogether the outlook for American shipbuilding and marine engineering was far more hopeful in the latter part of 1925 than it was in the opening months of the year.

MATERIALS OF ENGINEERING AND CONSTRUCTION

By C. Laurence Warwick

Secretary, American Society for Testing Materials

The six years that have elapsed since the *American Year Book* was last published have witnessed two outstanding developments in the field of engineering materials, namely, the rapid growth of standardization and greatly increased interest in research. The importance of standard specifications and tests for materials in relation to future industrial development can hardly be overestimated and is resulting in the constant extension of standardization into new fields. The importance of research in materials has been somewhat slower of realization. However, the industries are coming to appreciate their dependence upon research for the development of new materials and for extending and amplifying our knowledge of present materials. Moreover, standardization itself is ultimately a stimulus to research; for the suitability of materials for given services cannot always be measured by present-day standards, so that intensive study of materials and their properties is practically an economic necessity. Indeed, in some fields engineering practice has outstripped knowledge of materials, and here we see the more intensive research at the present time.

Fatigue of Metals.—Much has been learned in the past five years respecting the strength of metals under repeated stress and the phenomena of "fatigue" failures—a subject of growing importance in the design and operation of a large variety of machinery and structures subjected to repeated stresses. It is now known that fatigue is not due to "crystallization" of the metal as was once thought, but is really a progressive fracture that starts at some point of high localized stress and proceeds by spreading of minute cracks, which may be due to slip along cleavage planes in the crystals of the metal. Failure usually occurs suddenly and without appreciable plastic deformation.

It has been well established that wrought ferrous metals have an endurance limit, defined as a unit stress below which the metal is capable of withstanding an indefinitely large number of stress reversals; that this endurance limit seems to be more consistently related to tensile strength than to elastic limit; and that the ratio of endurance limit to tensile strength (the so-called "endurance ratio") for a number of steels of various compositions and heat treatments ranges from 0.45 to 0.55. The endurance limit of many steels is raised by suitable heat treatment, though not necessarily in the same ratio that static elastic strength is increased by such treatment. It seems to have been well established that if metal is repeatedly stressed below its original endurance limit the effect is to raise both the static and endurance strengths.

The existence of an endurance limit for the non-ferrous metals and alloys is not so well established. The brass and bronze compositions so far investigated seem to have an endurance limit; but it is not yet definite that such alloys as duralumin and monel metal have an endurance limit and further tests are necessary. The endurance ratio for non-ferrous metals is distinctly lower than for ferrous metals, ranging from 0.25 to 0.45 and varying widely for different metals and for different conditions of the metal.

Studies are now being made of the fatigue strength of metals at high temperatures. H. F. Moore and T. M. Jasper find that in most cases the endurance limit of normalized carbon steel, nickel and monel metal decreases slightly from ordinary temperatures up to 800° F. and falls off rapidly for temperatures above 900° F.; and that the endurance limit at any particular temperature approaches the tensile strength at that temperature as determined by prolonged tests (see under Properties of Metals at High Temperatures).

The endurance properties of metals have been determined for the most part by subjecting specimens to millions of cycles of alternate flexural, torsional or direct tensile and compressive stresses. The time consumed in such tests is very great, which lends much importance to the development of short-time tests. H. F. Moore reports that the endurance limit of many wrought ferrous metals may be reliably determined by observing the rise of temperature of specimens subjected to some hundreds of cycles of reversed stress; and D. J. McAdam has devised an accelerated torsion test in which the applied stress is automatically increased as the specimen "gives" under the originally applied stress. Important studies are also being made of the significance of the range of stress reversal with respect to the elastic strength of the metal.

Select References

Moore, H. F., and Jasper, T. M.—*An Investigation of the Fatigue of Metals.* (University of Illinois. *Bulletins*, Nos. 142 and 152.)

McAdam, D. J., Jr.—"Endurance Properties of Steel," Am. Soc. Testing Mats., *Proceedings*, vol. 2, *23;* "Accelerated Fatigue Tests," "Endurance Properties of Corrosion-Resistant Steels," and "Endurance Range of Steel," *ibid.*, vol. 2, *24;* "Endurance Properties of Alloys of Nickel and of Copper," Am. Soc. Steel Treating, *Transactions*, vol. 7; "Endurance Properties of Non-Ferrous Metals," *Mining and Metallurgy*, October, 1925.

Moore, R. R.—"Resistance of Manganese Bronze, Duralumin and Electron Metal to Alternating Stresses," Am. Soc. Testing Mats., *Proceedings*, vol. 2, *23;* "Resistance of Metals to Repeated Static and Impact Stresses," *ibid.*, vol. 2, *24;* "Some Fatigue Tests of Non-Ferrous Metals," *ibid.*, vol. 2, *25*.

Gillett, H. W., and Mack, E. L.—"Notes on Some Endurance Tests of Metals," Am. Soc. Testing Mats., *Proceedings*, vol. 2, *24*.

Properties of Metals at High Temperatures.—A new importance has been given recently to the study of this subject by two significant industrial developments: the high temperatures (750° F.) and working pressures (600 lbs. per sq. in. and higher) now used in modern steam-power-plant operation; and the high temperatures, ranging from 750° to 1,000° F., developed in the "cracking" of crude oil. The metals at present commercially available for these services undergo considerable loss in strength at temperatures above 600° F. and metallurgists are not entirely agreed upon the details of their "strength-temperature" curves. Accordingly, two important problems are presented: first, the precise determination of the properties of metals at high temperatures; and second, the development of materials that exhibit improved properties, both as to mechanical strength and chemical stability, at these temperatures. As a first step towards the study of these problems, the American Society of Mechanical Engineers and American Society for Testing Materials have brought together in a Symposium on the Effect of Temperatures upon the Properties of Metals (Am. Soc. Testing Mats., *Proceedings*, vol. 2, *24*) a complete résumé of existing knowledge of the subject, including a comprehensive bibliography, and have sponsored an extensive investigation to standardize test methods, study the properties of metals at elevated temperatures and correlate tests in different laboratories with behavior as it appears in actual service.

Experimentation has brought out certain significant facts. Up to about 850° F. high strength of most steels is a function of composition and heat treatment, and steels having highest strength at ordinary temperatures show similar superiority throughout the entire range; from 850° to 1,100° F. the benefits to be derived from heat treatment are limited and strength is a function largely of composition. Above temperatures of 1,100° F. it is improbable that commercial steels can be produced to withstand continuously large loads, and we shall probably have to turn here to chrome-nickel, chrome-iron-nickel and similar alloys that show such great resistance to oxidation, corrosive agencies and high temperature and have been used for a number of years in many chemical and metallurgical processes.

Investigators are turning their attention to a study of flow in steel under long-sustained loads at various temperatures. H. J. French and W. A. Tucker (U. S. Bureau of Standards, *Technologic Paper No. 296*) describe three stages of flow of a low-carbon boiler steel, and find that the load that permits long life at 1,100° F. without flow, approximates the proportional limit at that temperature determined by the usual short-time test, a conclusion which has been confirmed by others. The correlation of long- and short-time tests at high temperatures is an important problem.

Select References

"Symposium on Corrosion-Resistant, Heat-Resistant and Electrical-Resistance Alloys," Am. Soc. Testing Mats., *Proceedings*, vol. 2, *24*.

Lynch, T. D., McVetty, P. G., and Mochel, N. L.—"Tensile Properties of Metals at High Temperatures," *ibid.*, vol. 2, *25*.

Moore, H. F., and Jasper, T. M.—University of Illinois, *Bulletin No. 152*.

Corrosion.—Recent years have witnessed the inauguration, under the auspices of the National Research Council, of organized study of corrosion of metals. Technical literature is replete with valuable data. Much progress has been made in studying the theory and mechanism of corrosion and the electrochemical theory (W. D. Bancroft, "The Electrolytic Theory of Corrosion," *Journal of Physical Chemistry*, vol. 28) as amplified by recent investigations is generally accepted as explaining the fundamental phenomena of corrosion. The 1925 Corrosion Symposium of the American Chemical Society (*Industrial and Engineering Chemistry*, April, 1925) gives a balanced cross-section of present corrosion thought. The effects and relationship to each other of the numerous factors that influence corrosion are coming to be more clearly understood. These factors, it appears, have relatively a retarding or accelerating influence depending on surrounding conditions and the resultant of these contending forces determines the rate of corrosion in any particular case. Two interesting problems reported upon this year are the cause of pitting, now attributed to differences in oxygen supply rather than in the metal itself, and the formation of protective films which greatly retard the progress of corrosion. Microscopic study of corrosion holds many interesting possibilities.

An important line of attack of the corrosion problem is that of comparative corrosion tests. An outstanding example is the elaborate series of tests of uncoated steel and iron sheets exposed to three atmospheric conditions and totally immersed in four kinds of running water (Report of Committee on Corrosion of Iron and Steel, Am. Soc. Testing Mats., *Proceedings*, vol. 1, *20-25*). These tests, while not yet completed, have clearly indicated the superiority of copper-bearing metal in resisting atmospheric corrosion, although such material seems to show no superiority in the immersion tests. A similar series of exposure tests of various metallic-coated iron and steel products has been started this year (*ibid.*, vol. 1, *25*).

Accelerated corrosion tests are of great practical importance, for if properly related to the factors of ordinary corrosion they may give in a comparatively short time reliable indications of the rust-resisting properties of metals under conditions of actual service. A critical comparison and evaluation of four principal tests—total immersion, alternate immersion, spray and accelerated electrolytic—is being undertaken by the American Society for Testing Materials as a contribution to the organized study of corrosion (Report of Committee on Corrosion of Non-Ferrous Metals and Alloys, Am. Soc. Testing Mats., *Proceedings*, vol. 1, *24*).

Reference is made to a comprehensive tabulation of the properties of corrosion-resistant alloys—of which the iron-chromium alloys are the basic type—and some important contributions to knowledge in this field (Symposium on Corrosion-Resistant, Heat-Resistant and Electrical-Resistance Alloys, Am. Soc. Testing Mats., *Proceedings*, vol. 2, *24*).

Light Alloys.—Aluminum and magnesium and their high-strength "light alloys" with such hardening elements as copper, silicon, zinc and manganese, in both the cast and wrought state, are finding many engineering applications where light weight is an economic advantage or indeed an absolute essential, familiar illustrations being aircraft and automobile construction. Abroad, the magnesium-base alloys have been rather highly developed but in this country the greatest development has been with the aluminum-base alloys, of which the most prominent is duralumin, an alloy of aluminum with copper and magnesium. Duralumin, while having a tensile strength annealed of about 30,000 lbs. per sq. in. and after heat treatment and "aging" of about 60,000 lbs. per sq. in. with elongation of 20 per cent., is relatively difficult to fabricate; but a new alloy of aluminum and copper, containing slight percentages of silicon and iron, is described by R. S. Archer and Zay Jeffries (*Mining and Metallurgy*, February, 1925), which after suitable treatment has about the same strength as duralumin combined with improved working qualities. These experimenters also describe an aluminum-magnesium-silicon alloy that in the annealed state is quite soft, but which can by artificial aging be greatly hardened, having excellent machining and cold-forming properties. The development of the best properties of these alloys is dependent on thorough mechanical working.

S. Daniels and D. M. Warner (*ibid.*, July, 1925) describe an aluminum-copper-silicon alloy that may be sand cast and heat treated to give high strength, ductility, resistance to shock and good machineability. Other references are:

Streeter, R. L., and Faragher, P. V.—"Aluminum and Its Light Alloys," *Mechanical Engineering*, May, 1925.

Daniels, S.—"Magnesium and Its Alloys," *ibid.*, October, 1925.

Heat Treatment.—Heat treatment of metals, brought to a considerable degree of perfection with alloy steels, is now being applied to ordinary carbon steels, wrought iron and cast iron. R. H. Smith (Am. Soc. Steel Treating, *Transactions*, May, 1925) has shown that low-carbon steel may have its tensile strength increased from 50,000 to 125,000 lbs. per sq. in. by heating to high temperature and very rapidly quenching. The ability of wrought iron to resist shock is greatly increased by proper annealing. Pearlitic cast iron, formed by allowing molten iron to cool extremely slowly, gives a metal of fine microscopic structure, extremely adaptable for light and medium castings. It would seem also that the physical properties of ordinary cast iron can be materially modified by heat treatment (F. Grotts, *ibid.*, June, 1925). Recommended practices for various kinds of heat treatment are being formulated by the American Society for Steel Treating.

The science of metallography is an essential aid in studying effect of heat treatment upon the physical structure of metals. Standard methods of metallographic testing have been published (*1924 Book of A. S. T. M. Standards*), and magnifications of 5,000 diameters and higher are now possible. Metallographic testing is beginning to find a place in commercial specifications, recent specifications for condenser tubes containing a requirement for grain size.

X-ray metallography, a comparatively recent development, comprises two main divisions: X-ray crystallography, in which X-rays are used to study the crystal structure of metals; and metal radiography, in which internal defects in metal are shown by the X-ray. A recent report (Committee on Metallography, Am. Soc. Testing Mats., *Proceedings*, vol. 1, *25*) outlines the subject and gives an excellent bibliography. It is now possible, through studies at Watertown Arsenal and elsewhere, to make X-ray photographs through 3½ in. of metal and to detect a cavity 1/16 in. in diameter, and it is not improbable that improvements now being perfected may make examination of somewhat thicker sections a possibility. As a method of commercial inspection radiography is at present expensive, but the possibility of detecting dangerous flaws before parts are put into service is a decided advantage and the expense may be justified in the case of specially important installations. Thus, this method of examination has already been applied to certain important steel castings for the Weymouth Power Station of the Edison Electric Illuminating Company of Boston (*Mechanical Engineering*, May, 1925). The value of radiography as a means of controlling foundry practice is being recognized.

Cement.—Cement has become one of the most important materials of construction, yet our knowledge of its constitution and the processes by which it hardens is by no means complete. For the past decade efforts to improve concrete have been directed largely towards the study of aggregates, amount of water and influence of various admixtures (see under Concrete), and the belief is now growing that cement itself must be studied and further improved. Thus, the Portland Cement Association has established a fellowship at the U. S. Bureau of Standards for the purpose of making a fundamental study of Portland Cement and placing the art of making and using it on the highest possible scientific basis. The fellowship has completed about a year's work devoted to studies of the chemical systems involved and the hydration of cement in the presence of excess water.

Meanwhile, the American Standard Specifications and Tests for Portland Cement are widely accepted throughout the country as a basis of purchase. However, some difficulties are being experienced in securing concordant test results, for the testing of cement is not an exact science and the results are greatly influenced by seemingly minor variations in procedure. A Manual on Cement Testing has recently been issued (Am. Soc. Testing Mats., *Proceedings*, vol. 1, *25*) as an aid in the routine procedure of testing.

The requirements of cement for modern highway construction have been admirably discussed by A. T. Goldbeck (*ibid.*, vol. 2, *25*), who states that concrete for highway construction would be even more suitable from a technical standpoint than it is at present if it developed high tensile strength within a very few days with low shrinkage under action of moisture and temperature. Whether high-strength cement is the answer, as some highway engineers believe, has yet to be demonstrated from an economic point of view; although Goldbeck concludes that if cement of high early strength can be obtained with no decided increase in cost and no danger of disintegration, it is desirable and something towards which cement manufacturers should strive.

An interesting development in this direction is the production commercially of a high-alumina cement (similar to the French "ciment fondu") which in 48 hours has a compressive strength in 1: 3 mortar of about 6,000 lbs. per sq. in. compared to say 700 lbs. for Portland cement, and which in 1: 2: 3 concrete shows considerably higher transverse and compressive strengths at 24 hours than Portland-cement concrete at 28 days (H. S. Mattimore, *ibid.*). There has also been developed in England a modified Portland cement with slow initial set followed by rapid hardening, attaining in about three days the 28-day strength of normal cement (*Mechanical Engineering*, June, 1925).

Concrete and Reinforced Concrete. —The application to field practice of the principles of proportioning developed by laboratory experimentation is an outstanding feature of the Standard Specifications for Concrete and Reinforced Concrete prepared by a joint committee of five national organizations (Am. Soc. Testing Mats., *Proceedings*, vol. 1, *24*). These specifications represent the consensus of present opinion regarding materials, proportioning, construction and design of concrete and reinforced concrete structures, and they constitute an important step forward in the matter of "design" of concrete mixtures. In place of the common practice of specifying proportions of say 1: 2: 4, irrespective of nature and grading of aggregates, and using a fixed basic unit stress for concrete of perhaps 800 lbs. per sq. in. on the assumption of 2,000-lb. concrete, the specifications require that the engineer shall determine, by tests of available aggregate in advance of use, the proportions to produce concrete of the required strength; or, where this is impracticable, the engineer may use tables (based upon many thousand tests) giving proportions in which cement and a wide range of sizes of fine and coarse aggregates should be mixed to obtain concrete of given consistency and desired compressive strength. The basic working unit stress is then fixed at 40 per cent. of the compressive strength at 28 days, thus giving proper recognition to higher quality concrete. The specifications also require that the quantity of water used shall be the minimum necessary to produce concrete of suitable consistency for each particular use.

Field tests made under the auspices of the joint committee in connection with the construction of a large concrete building and a concrete bridge, and reported by W. A. Slater and S. Walker (Am. Soc. Civil Engrs., *Proceedings*, January, 1925) indicate that it is possible to meet the requirements of these specifications provided a tolerance is allowed which permits about 10 per cent. of the strengths to fall below 80 per cent. of the average strength. Examples are not lacking of successful construction under such methods. T. P. Watson (Am. Concrete Inst., *Proceedings*, vol. 21) describes the application of these principles to a reinforced concrete bridge at Pittsburgh and A. W. Munsell (*ibid.*) describes field control of concrete for the Delaware River Bridge at Philadelphia.

In an elaborate series of tests on the bond between steel and concrete reported by D. A. Abrams (Am. Soc. Testing Mats., *Proceedings*, vol. 2, *25*), the conclusion is drawn that the use of 4 per cent. of the 28-day compressive strength of concrete as a working unit stress in bond for plain bars, as allowed in the above-mentioned specifications, is justified in that it gives a factor of safety of at least 2½ against slip.

The "slump" test for consistency generally recommended as a control test for the important factor of water-cement ratio (see *American Year Book*, 1918, p. 609), does not seem to be so well adapted to dry mixes and a promising new test has been devised by F. H. Jackson and G. Werner (Am. Soc. Testing Mats., *Proceedings*, vol. 2, *25*). It consists in determining by weight the amount of concrete retained upon a 12-in. circular steel plate when a greater volume of concrete than could be retained upon the plate under any circumstances is dropped upon it from a given height. The wetter the concrete, of course, the less will be the amount retained. The consistency as thus determined is found to bear a concordant relation to the water-cement ratio and the method gives excellent promise as a control of concrete in highway construction.

The use of concrete in building units such as block, tile and brick is an important development and standards for such units are being studied most effectively by the American Concrete Institute (*ibid.*, vol. 21).

The influence of admixtures, such as calcium chloride as a hardener of concrete, and the effect upon concrete of acid and alkali-carrying waters are important subjects of study. These and others are discussed in the following references:

Abrams, D. A.—"Calcium Chloride as an Admixture in Concrete," Am. Soc. Testing Mats., *Proceedings*, vol. 2, *24*.

Miller, D. G.—"Life of Concrete Stored in Sulfate Solutions"; and Report of Committee on Drain Tile, *ibid.*

Butterfield, E. E. — "Analytical Properties of Set and Hardened Mortars," *ibid.*, vol. 2, *25*.

Gowen, J. W., and Leavitt, H. W.—"The Significance of the Common Test Methods for Determining the Strength of Mortars," *ibid.*

Gonnerman, H. F.—"Effect of Size and Shape of Test Specimen on Compressive Strength of Concrete," *ibid.*

Road Materials.—Highway engineers are supplementing their laboratory studies of road materials by the building of test roads for the purpose of observing under known and controlled traffic the behavior of various materials and types of road construction. Three such roads have been constructed by the state highway departments of California and Illinois and the U. S. Bureau of Public Roads. The latter, at Arlington, Va., is in the form of a circular track approximately 625 feet in circumference, and has been used to determine the resistance to wear of some sixty types of concrete pavements and the stability or resistance to "shoving" of about thirty bituminous paving mixtures. The concrete test sections were subjected to approximately 300,000 passages of a solid rubber-tire truck wheel loaded to 3,000 lbs., traveling at a speed of 22 miles per hour, as well as 50,000 passages of the same truck wheel with non-skid chains—equivalent to several years' traffic on the average concrete road. The results and conclusions from the test have been reported by F. H. Jackson and J. T. Pauls (Am. Soc. Testing Mats., *Proceedings*, vol. 2, *24*).

Because of the difficulties experienced in warm weather with the rutting and shoving of certain types of bituminous roads, the stability tests are of much importance. The results of the road tests are being compared with a newly developed laboratory test by means of which it is hoped to reproduce in terms of laboratory results the demonstrated relative stabilities of the road test mixtures. This test, as described by W. J. Emmons and B. A. Anderton (Am. Soc. Testing Mats., *Proceedings*, vol. 2, *25*) involves the molding under pressure of a small rectangular slab of the mixture and, by pressure exerted on one side of the confined specimen, extruding a portion through openings in the bottom and sides of the mold. A somewhat similar test has been devised by P. Hubbard and F. C. Field (*ibid.*), which measures the maximum load required to force a briquette of the bituminous mixture through a circular orifice in a mold. Both give promise of enabling the highway engineer to design bituminous paving mixtures that will have greatly increased stability and ultimately to evolve a theory of proportioning such mixtures.

The subject of sub-grade soils is now receiving the study that its importance in road construction deserves. Such factors as gradation, moisture content and adsorption of soils are being studied in the laboratory and by careful observation of actual field conditions. In fact, the whole subject of soil mechanics is a vital one to the highway engineer, particularly in its application to the sand-clay mixtures that are practically the only type of road economically possible for moderate traffic in many parts of the country. The subject has been discussed in a comprehensive way by C. Terzaghi (*Engineering News-Record,* Nov. 5, 1925, *et seq.*).

Paints.—Study of paint from the point of view of chemical composition is giving way to study of its physical characteristics, of which recent illustrations are stress-strain tests of actual paint films and accelerated aging tests in which ultra-violet radiation from artificial sources is utilized to simulate effect of sunlight. Such studies are yielding data that will have an important influence on paint technology. Elaborate investigations of varnish are being made, as well as of anti-fouling and anti-corrosive paints for ship bottoms (Report of Committee on Preservative Coatings, Am. Soc. Testing Mats., *Proceedings,* vol. 1, *25*).

A nitro-cellulose paint, pyroxylin enamel, has been developed that makes an excellent finish for automobile bodies, being highly resistant to light, heat and moisture. The basic material is cotton, specially purified and nitrated. After a process to prepare it for the admixture of solvents and gums, the resultant clear liquid is mixed with pigments to produce an opaque enamel that dries by evaporation (J. J. Riley, Soc. Automobile Engrs., *Journal,* September, 1925).

The U. S. Government has quite completely covered the field of paint specifications, including vehicles, pigments and mixed paints, and has recently issued a valuable report on the use of paints (U. S. Bureau of Standards, *Technologic Paper No. 274*).

Miscellaneous.—The comprehensive series of tests to determine the effect of sulphur in steel (see *American Year Book,* 1919, p. 605) is well along towards completion. The results of tests on rivet and structural steels with "residual" sulphur and on three grades of steel with "added" sulphur have been published (Am. Soc. Testing Mats., *Proceedings,* vol. 1, *22, 23, 24*). Tests on forging steels with residual sulphur are being made, with rail steels and castings next on the program. Formal conclusions have not yet been published.

P. D. Merica and R. G. Waltenberg (*Mining and Metallurgy,* January, 1925) have found that lack of malleability of ordinary cast nickel is due to the presence of sulphur in excess of 0.005 per cent., which forms an embrittling compound, Ni_3S_2. Malleability is completely restored by the addition of magnesium.

T. H. Wickenden and J. S. Vanick have described the properties of cast iron containing nickel in amounts up to 5 per cent. and chromium in amounts up to 0.50 per cent. (Am. Foundrymen's Assoc., *Proceedings,* 1925). It appears that cast iron can be hardened with nickel and yet be as readily machined as in the softer condition. Both nickel and chromium increase the strength of cast iron and nickel definitely improves its toughness.

Synthetic wrought iron of high grade is being manufactured by the Aston process (*Iron Age,* October 29, 1925). Molten iron is poured into a bath of slag and almost instantly solidifies into particles which settle to the bottom as a spongy, porous mass similar to a well-worked puddle ball. The process has the advantage of suitable control, flexibility and the prospect of alloy base metals and special types of slag not possible with usual puddling methods.

J. L. Schueler describes a new method of coating wire with zinc, termed "galvannealing" (Am. Electrochemical Soc., *Transactions,* 1925). In this process the wire, after leaving the molten zinc, is annealed instead of being wiped as in the ordinary hot-dip process. This heat treatment smooths the coating and makes it flexible and malleable. Test results so far seem to indicate the superiority of this heavy, uniformly applied, non-porous zinc coating.

American Standards for Softwood Lumber have been developed under the auspices of the U. S. Department of Commerce and Agriculture. Based upon tests of many species of wood by the U. S. Forest Service, they embody basic grades for yard and factory lumber and structural timbers and provide for a uniform lumber inspection service, which marks a forward step in the lumber industry. Standards for hardwood lumber are now being formulated.

We are coming to understand much better the physical properties of rubber that have led to its increased use as an engineering materials. The remarkably high resilience that makes it a good tire-tread material is leading to its use in other fields, such as lining of ball mills, of tanks and as a covering for wood and metal structures that are subjected to abrasion.

Physical testing of mechanical cotton fabrics such as tire fabrics, hose, belt and numbered ducks (see *American Year Book*, 1918, p. 614) has so well demonstrated its value that the principles and methods developed are being applied to other textiles used in engineering applications—and indeed to some textiles that are not strictly associated with engineering. Yarns and thread, cloth cement bags, asbestos textiles, rope and cordage, knit goods, woolens and rayon are among the materials now being tested in this way.

Gears and pinions, manufactured from cotton products bonded with phenolic synthetic resins under heat, give excellent wearing qualities with minimum noise and are finding important applications in industrial motors and the timing gears of automobiles.

Testing and Nomenclature.—Viewing the field of testing materials as a whole, one sees increasing evidence of the endeavor to develop tests that will more exactly define and determine those properties of a material that make it suitable for a given service. Some of our present-day routine acceptance tests determine, instead, certain properties that are possessed by materials found by experience to give good service. Such tests are of the "indirect" type, serving to control the uniformity of a satisfactory product; but it may not follow that materials not possessing those particular properties will not give good service. This is frequently brought out in applying new materials. Often it is difficult to devise a rational test for the intrinsic "suitability" of a material for given service and it is in such cases that actual performance tests are most valuable. This is well illustrated by the road tests and corresponding laboratory studies of bituminous paving materials already mentioned. Another illustration is that of mechanical rubber goods. The chemical and physical tests usually specified for such goods are often not a true index of the service life of the article, and investigators are therefore working on tests to measure such properties of rubber goods as the resistance to natural deterioration with age and to various kinds of abrasion.

Accelerated performance tests are a natural development of this type of testing, in which the several factors that bring about failure are intensified in order to hasten ultimate break-down. While the principal criterion of usefulness of the accelerated test is that it shall truly predict the behavior and life of materials under actual conditions of service, many of these tests are *per se* valuable tools in the hands of experienced investigators.

Testing of full-size structural members continues to contribute to our knowledge in important ways. Prominent examples this year are tests of built-up column sections of towers of the Delaware River Bridge and of concrete floor slabs of the bridge. Tests of strength and fire resistance of full-size walls, partitions and columns are bringing out valuable data that will influence specifications and tests for individual building units such as brick, tile and block.

The establishment of logical systems of nomenclature and the adoption of standard definitions of terms relating to engineering materials are receiving considerable attention in several of the national engineering societies.

Standardization.—There has been substantial progress this year in the promulgation of standards for materials. The American Society for Testing Materials has supplemented the 220 standards published in its 1924

Book of Standards with 36 additional standards covering copper trolley wire, condenser tubes, lime and gypsum, waterproofing materials and textiles; and has published 47 new tentative standards, including specifications for castings and bolting material for high temperature service, structural silicon steel, ferro-alloys, bronze trolley wire, bituminous roofing materials and paint pigments, and tests for petroleum products, road materials, electrical insulating materials and slate. Its standardization activities have this year been extended into the fields of electrical heating wire, slate, natural building stones and naval stores. The American Railway Association, Society of Automotive Engineers and American Concrete Institute have been active in materials standardization work within their respective fields.

The Federal Specifications Board is undertaking the unification of the purchase specifications of the various departments of the government, seeking at the same time to bring them where possible into accord with generally accepted commercial practice so that the field of supply for government purchases may be widened. The Board has issued about 350 specifications, many of which cover engineering materials.

The Division of Simplified Practice of the U. S. Department of Commerce is effectively giving expression to the efforts of a number of industries to reduce to an economic minimum the sizes, shapes and varieties of various manufactured products. About thirty-five simplified practice recommendations have been formulated, including some applying to such engineering materials as paving brick, concrete reinforcement bars, hollow building tile and paving asphalts.

The Department of Commerce has just issued a National Directory of Commodity Specifications, which contains a classified list of 27,000 specifications for about 6,500 commodities, indicating which ones are in general use, by whom they were prepared and where copies may be obtained.

The American Engineering Standards Committee, sponsored by the leading national technical societies and the several departments of the government, is functioning as an agency for coöperative work in the formulation of engineering standards, seeking to avoid duplication of standardization work and promulgation of conflicting standards. It is, essentially, the national clearing house for industrial standardization, placing this work upon a broad national basis and greatly facilitating the adoption of truly national standards.

The standardization movement has gained the attention of industry as a whole and the active support of many of its important groups. The objection to standardization on the ground that it weakens the incentive to invent and to develop new materials and new processes, is giving way to the realization that standards are simply an expression of the results of experience in the successful use of commodities and that they really conserve our time and energy for the pursuit of that fundamental research upon which the ultimate progress of our civilization depends.

INDUSTRIAL STANDARDIZATION

By P. G. Agnew

Secretary, American Engineering Standards Committee

Rapid Development. — Industrial standardization has developed with rapidity in the last few years; since it is now for the first time treated in the *American Year Book*, it seems fitting there should be included a brief outline of the general movement.

Significance. — By standardization is meant the concentration upon specific products and materials, both in production and in use, to the end of bringing about the greatest possible industrial efficiency. Through standardization yearly savings almost incredible in magnitude can be made. Actual savings now being made in the automobile industry due to organized standardization activities are estimated by the industry itself at 750 million dollars per annum.

Industrial standardization involves: nomenclature, including definitions of technical terms used in specifications and contracts; specifications for use as a basis of purchase, for example, specifications for paint, cement, metals; methods of testing apparatus and materials, particularly as a basis of acceptance; uniformity in dimensions necessary to secure interchangeability of supplies and the interworking of apparatus and parts, such as bolts, nuts, pipe, gears; provisions for safety; and concentration upon the optimum number of types, sizes and grades of manufactured products.

Four Stages.—According to the scale upon which it is carried out, the process of standardization may be classified roughly into four stages, namely: by individual firms, by technical and trade associations, on a national scale, and on an international scale.

Standardization by individual firms is now well developed in all the principal industrial countries, and unquestionably it has been pushed furthest in the United States. Every industrial plant is now carrying on standardization of its own products and processes, and its competitive success largely depends upon the completeness with which it has studied and solved these problems. Standardization within the plant is an essential element in mass production, and mass production in turn has been the chief contribution of the United States to the development of industry.

Group standardization, by technical and trade associations, is largely a development of this century. In many cases standards so developed have come into such general use as to make them essentially national in character, but generally systematic coöperation and understandings with other interested groups is necessary to bring about full national recognition.

Standardization upon a national scale has become necessary because of the fact that the scope of most standardization projects affects not only one industry but several. Standardization cannot reach full effectiveness until it is treated as a national problem. There are now national standardizing bodies in nineteen countries, all but one of which have been organized since the war. The work of these national bodies is being woven intimately into the industrial fabric.

Until recently the movement has been largely centered in and carried on by the technical man. It is now becoming recognized that standardization is a managerial problem of the first rank in industrial production, distribution and utilization, and as such deserves the fullest industrial support. It is significant that the American Engineering Standards Committee early in the year organized an advisory committee of first-line executives, who are now giving time and assistance to the solving of national standardization problems.

Government Activities.—The Government's activities in standardization, which are very broad, are carried on from the point of view of the Government as a purchaser and as an aid to industry and the public.

The Federal Specifications Board, whose function is to unify the specifications of the various branches of the Federal Government and to bring them into harmony with the best commercial practice wherever conditions permit, has completed its fifth year. Up to the close of the year 1925, the Board had officially promulgated approximately 350 specifications, which have become mandatory upon the various Government departments.

The Bureau of Standards is a highly developed and efficient laboratory devoted primarily to research and the standardization of fundamentals.

The Division of Simplified Practice is undertaking to bring about a reduction in the number of sizes and styles of manufactured products by getting the various industries and users together in conference. The work of the Division is having a highly stimulating effect upon the whole industrial standardization movement. Since its organization in 1921, about 40 simplified practice recommendations have been carried through and accepted by industrial groups concerned. A dozen more simplified practice recommendations are awaiting final acceptance.

In August, 1925, there was published by the Department of Commerce a Directory of Specifications, which contains classified and alphabetical lists and brief descriptions of existing commodity specifications. The classification includes approximately 27,000 existing specifications covering 6,000 commodities, and it will be found very useful in connection with purchases. The astonishing multiplicity of specifications on the same subject, as evidenced in the Directory, has brought sharply forward the problem of unifying them into consistent groups. Such a unification is an industrial and economic problem of the first importance.

A wide range of standardization activities is also being carried on by the Department of Agriculture.

American Engineering Standards Committee.—Typical of the progress has been made in the standardization movement as a whole is the work of the American Engineering Standards Committee, in which over 250 trade and technical organizations are now coöperating through more than 1500 accredited representatives. This Committee is the agency through which industrial standardization in this country is passing from standardization by and within associations, societies and governmental agencies, to standardization on a national scale, and through its method and procedure the standardization work of the many bodies concerned is being broadened and unified into a system of national industrial standards.

The work on individual projects is carried on in joint technical committees, composed of accredited representatives of all interested groups—manufacturers, employers, distributors, technical bureaus of the Federal Government, et cetera. The representation is arranged through technical, trade and governmental bodies. In giving its approval to a standard the Committee considers particularly the adequacy of representation of the various interests on the technical committee, and the procedure which has been followed, in order to make sure that all organizations concerned have had an opportunity to participate in the work, and that the work has been carried out under a procedure that has been regular, open, and above board, and that the standard represents a real consensus on what is best in American engineering and industrial practice.

Scope of the Movement.—The scope of the national standardization movement, in which 250 national organizations are now participating, covers projects in the following fields: civil engineering and building trades, mechanical engineering, electrical engineering, automotive (automobile and aircraft), transportation, shipbuilding, ferrous metallurgy, non-ferrous metallurgy, the chemical, textile, mining and wood industries, and the paper and pulp industry.

Typical of the work accomplished in the field of mechanical engineering is the project on screw threads, a standard which touches practically every industry. The approval of the standard on screw threads for fire hose couplings constituted an important step in the prevention of conflagration through lack of interchangeability of fire fighting apparatus. Substantial progress has been made in the work on pipe flanges and fittings. The standard on gauges and systems of gauging, including the question of fits, was completed and ready for issue at the close of the year. New projects include those dealing with pins and washers, radio, manhole frames and covers, power piping, graphics and drawings.

A particularly important part of the work has been in the field of mining standardization, and at present work on no less than 16 mining projects is going forward. These include codes for rock dusting (which was completed at the close of the year), mine illumination, ventilation, the use of explosives in coal mines, and underground transportation.

The industrial safety program now

includes over 40 safety codes, of which 16 have been completed, and work on a dozen others is well advanced.

International Coöperation.—Standardization on an international scale is still in its infancy, yet through the coöperation of the various national standardizing bodies there has been real accomplishment in several subjects, the most notable of which is ball bearings. Over 50 of the more important sizes of ball bearings are now standard throughout the world and are, of course, completely interchangeable.

Of special interest in the field of international standardization is the First Pan American Conference on the Uniformity of Specifications, which was held in the first part of January, 1925, at Lima, Peru. At this Conference, an official one, resolutions were passed providing for starting standardization work in the various Pan American countries. It was decided to hold another such conference in the United States within two or three years.

In the latter part of October, 1925, there was held in Zurich, Switzerland, a conference of technical experts, representing nearly all of the European standardizing bodies. The following subjects were among those discussed: screw threads, widths across flats, shaft heights for electrical machinery, shaft ends, couplings, grinding wheels, and pipe.

In April, 1925, there was held at The Hague a meeting of the International Electrotechnical Commission, at which a considerable forward step was taken toward agreement on the rating of electrical machinery, a subject which has been before the Commission for nearly a score of years. Substantial progress was also made in a number of other subjects, such as nomenclature, transformer oils, and lamp bases and sockets. The next meeting of the Commission, according to present plans, will be held in New York in April, 1926.

In connection with this meeting of the International Electrotechnical Commission, there will also be held in New York a conference of the chairmen and secretaries of the national standardizing bodies, for which the American Engineering Standards Committee will be host.

ENGINEERING STATISTICS

By W. H. Rastall

Industrial Machinery Division, Department of Commerce

Machinery Data.—The machinery manufacturing industry of the United States, owing to the infinite variety in the type, value, and purpose of its products, does not lend itself readily to statistical presentation. There are but few classes of machinery which can be defined accurately, but, in presenting the following, reference is made to machinery as used in the factories, mines and construction enterprises of the country. An effort has been made to eliminate all reference to household equipment, electrical and agricultural machinery, locomotives, office equipment, and the like.

The only general survey made of the machinery industry as a whole is that given by the United States Census, the returns for which are shown in the following table:

Year	Establishments	Wage Earners	Primary Horsepower	In Thousands of Dollars			
				Wages	Cost of Materials	Value of Products	Value Added by Manufacture
1914	11,392	405,422	856,423	$274,432	$ 405,159	$ 978,064	$ 572,905
1919	12,483	666,979	1,428,393	856,442	1,317,008	3,200,184	1,883,176
1921	10,364	425,728	(1)	547,628	869,748	2,053,609	1,183,860
1923	9,849	587,161	1,611,884	834,536	1,200,612	3,009,516	1,808,907

[1] Not called for on schedule for 1921.

American Machinery Exports.—It will be noted that for 1923 the value of the products of this industry was in excess of three billion dollars, with the result that it is one of the most important in the country when considered as a whole, although it may be improper to consider the production of these various types of equipment as a single industry because of the diversity of products involved. On the other hand, the United States is distinguished abroad for the labor-saving and other machinery produced in this country, for the ingenuity of its designers, and for the superiority of the engineering represented by this equipment. American machinery is shipped in very large quantities all over the world. The total returns for 1925 are not yet available, but in 1924 these exports were in excess of $130,000,000.

England and Germany are usually considered the most serious competitors for equipment of this character, but both of the above countries absorb very large volumes of American mechanical equipment, shipments to Great Britain alone being in excess of $14,000,000 for the year 1924. Many American machinery manufacturers recognize the importance and value of this export business and devote very careful attention thereto, in some instances exporting well over 25 per cent. of their total production, although this export ratio is a factor which varies greatly according to the nature of the product and the circumstances of the industries it serves.

The following table shows the detailed production of different types of machinery for the years 1921 and 1923, and also the volume that was exported in each year. This will provide a statistical foundation from which the industry can be studied.

Type of Machinery	Production		Exportation	
	1921	1923	1921	1923
Dredging and Excavating	$ 17,848,733	$ 38,240,576	$ 2,280,591	$ 1,518,005
Oil Well Machinery	27,415,031	52,158,398	11,306,713	6,626,079
Mining	30,290,171	47,589,778	7,563,544	10,137,068
Air Compressors	15,728,629	27,762,309	3,905,684	2,627,546
Metal Working Machinery	81,222,649	189,239,938	19,635,821	13,104,586
Shoe Machinery	9,481,791	12,399,414	1,797,094	1,324,256
Flour and Grist Mill Machinery	8,663,327	9,083,777	1,612,066	1,155,485
Pumps and Pumping	69,255,176	92,814,688	11 966,469	7,462,116
Textile Machinery	115,166,967	127,406,348	19,928,353	9,043,677
Woodworking Machinery	25,681,963	49,544,019	3,544,128	1,754,333
Laundry Machinery	12,982,709	19,077,439	1,304,073	1,262,887
Paper and Pulp Mill	31,580,944	30,341,629	2,987,657	2,006,812
Concrete Mixers	8,665,611	14,462,712	581,861	567,635
Ice and Refrigerating	33,174,126	36,541,766	1,913,014	2,264,867
Road-making Machinery	17,858,209	27,514,113	989,557	921,392
Elevators and Elevating Machinery	61,376,779	106,493,782	1,979,504	2,428,000
Cotton Gins	2,721,290	7,175,031	118,463	315,878

Industry Returns to Normal.—As an industry, machinery manufacture is peculiarly susceptible to changes in economic conditions. Previous to 1918, this industry operated at its utmost capacity because of the exigencies of war, and the demand was continued for some little time after the Armistice because of the boom that prevailed at that time practically all over the world. However, about 1920 there was a very sharp reaction. It was found that practically every industry was equipped for production far beyond any normal demand. Manufacturers and dealers were carrying very heavy stocks of machinery on hand and, through the change from war to peace-time production, large volumes of machinery of endless variety were thrown on the second-hand market. It has required years to relieve this glutted condition in the markets for both new and second-hand machinery. However, 1925 may be considered the first year in which a normal situation has been reached, for in the interval since the Armistice many of the problems resulting from the war and the transition to peace-time manufacture had been solved, and for the first time the volume of business justified manufacturers in general in showing a renewed interest in mechanical equipment; in fact, industry during the year underwent something of a revolution.

Progress in Designing.—Competition has been exceedingly keen in most lines of manufacture and those responsible for production have come to realize more and more clearly that efficient production can only be secured through the use of up-to-date machinery, properly installed, and equipped with appropriate accessories. During recent years very great progress has been shown in the redesign of many types of machinery. For example, that for the woodworking industry has practically been completely revised during the past three years, changes being made in the direction of adopting direct-connected, electric-motor drives and the employment of ball and roller bearings, as it is found that in this way the machines can be made to give greater capacity, more rapid and more accurate production, vibration is eliminated, machinery can be placed to more advantage, the lighting of the workshops is improved, dust is decreased; in fact, from every angle better and more rapid production is secured under cirsumstances that are more healthful and more cleanly, and stimulate the morale of the personnel.

Expansion.—Manufacturers report that the machinery business for 1925 was well in excess of that for 1923 and 1924, and, in general, they look forward to 1926 with a feeling of optimism mingled with the restraint that is necessary to prevent the evils of boom inflation, but it is generally recognized that in practically all branches of the industry factory capacity is in excess of any normal demand, with the result that although the volume of business moving is large and satisfactory, prices are being kept down to low levels through keen competition. A great deal of progress is being made, however, in the direction of standardized manufacture, the elimination of excess variety, the increased attention given to research and improvements in design and engineering, to the more concentrated attention on careful business management on the part of manufacturers, and to improved ethics among them when in competition.

The United States owes a great deal to its machinery industry, as it is the instrument which makes possible the high standard of living, comfort, and wages, for which this country is distinguished, and the people of the United States can look with a great deal of assurance to the progress made by the machinery industry during recent years—a development that was well maintained during 1925.

DIVISION XXX
GEOLOGY, METEOROLOGY AND GEOGRAPHY

DYNAMICAL AND STRUCTURAL GEOLOGY

By Kirtley F. Mather
Professor at Harvard University

Earth Structure.—A critical analysis of the geological relations of earth-condensation and resulting acceleration in rotation of the earth, prepared by the late Joseph Barrell (Am. Journ. Sci., 5th ser., Vol. 10, pp. 408-432, 499-529) indicates that stresses in the earth's body due to changes of oblateness are wholly submerged beneath those due to change of volume. R. A. Daly (*Proc. Am. Phil. Soc.*, Vol. 64, pp. 283-307) emphasized the close relationship between mountain building and igneous action to a degree not possible before the hypothesis of continental displacement had been imagined by Taylor and Wegener. Daly describes the continents as sliding on a thick shell of hot, basaltic glass, rigid but weak, and explains the mountain chains as structures compressed on the downstream sides of gigantic landslides.

A factor not ordinarily considered by geologists is called to their attention by Warren J. Mead in "The Geologic Rôle of Dilatancy" (*Journ. Geol.*, Vol. 33, pp. 685-698). Dilatancy is the expansion of granular masses when deformed due to the rearrangement of the grains, and the term is expanded to include all volume increase due to deformation. Its consequences have far-reaching geologic significance. It is quite likely, for example, that the active thrust-faults in San Benito County, Cal., described by Paul F. Kerr and Hubert G. Schenck (*Bull. Geol. Soc. America*, Vol. 36, pp. 465-494) are developed in response to dilatancy involved in the differential movement of the earth-blocks separated by the San Andreas fault.

The relation of earth temperature to buried hills and anticlinal folds, as presented by W. T. Thom, Jr. (*Econ. Geol.*, Vol. 20, pp. 524-530) suggested a new application of geology to practical affairs as well as an interesting train of purely scientific inquiry. The abnormally high temperature gradients beneath the Salt Creek and other oil-bearing domes is attributed to the truncation of the folds by erosion so that relatively hot strata are now exposed near their tops. Sidney Powers also directed attention to the fertile field for research in structural geology, enriched by data pertaining to activities of the petroleum industry in the Mid-Continent region (*Bull. Geol. Soc. Am.*, Vol. 36, pp. 379-392).

Geologic Processes.—The causes of deposition of calcareous materials in sea water have long been of great interest. In a critical and experimental study of Drew's bacterial hypothesis of lime precipitation, Charles B. Lipman (*Carnegie Inst. Pub.*, No. 340, pp. 181-191) found no proof that deposition of lime is accomplished by bacteria under natural conditions. There are several interactions, physical, organic and atmospheric, constantly going on in the sea-water which determine large lime precipitation without introducing hypotheses such as Drew's.

A great flood of glacier-born waters, which during the ice age swept down the Snake and Columbia valleys and resulted in noteworthy erosion as well as deposition of gravel bars and the Portland delta, was described by J. Harlen Bretz (*Journ. Geol.*, Vol. 33, pp. 97-115, 236-259).

The close relationship between seismology and structural geology is illustrated by the study of clastic dikes in eastern Washington, made by Olaf P. Jenkins (*Am. Journ. Sci.*, 5th ser., Vol. 10, pp. 234-246), who "is inclined to believe" that the jagged, ramifying sand and dust dikes near Walla Walla are fillings of cracks resulting from earthquakes during or subsequent to the glacial period. Similarly, a study of the earth movements accompanying the Katmai eruption of 1912, made by Clarence N. Fenner (*Journ. Geol.*, Vol. 33, pp. 116-139, 193-223), indicates that the tectonic movements accompanying the eruption were not caused by the surficial faulting in the Valley of Ten Thousand Smokes, which he attributes to the intrusion of a sill-like body of not great thickness beneath its floor.

Isostacy.—F. A. Melton presented (*Am. Journ. Sci.*, 5th ser., Vol. 10, pp. 166-174) an interpretation of isostatic anomalies, which emphasizes anew the considerable strength of the earth's crust and suggests the possibility of deep-seated rather than merely surficial heterogeneity within the body of the earth.

Eastern Canada.—Discussion concerning the oldest known rocks of North America was rife at the annual meeting of the Geological Society of America, held at Ithaca during the last week of 1924. F. F. Grout (*Bull. Geol. Soc. Am.*, Vol. 36, pp. 351-364) presented data tending to show that the Coutchiching series in the Rainy Lake district was younger than the Keewatin series rather than older as A. C. Lawson had concluded several years ago. Later, George W. Bain described a thick mass of sediments in the Upper Harricana Basin, Quebec, which seem to be distinctly older than the Keewatin rocks. If so, these sediments of the "Okikeska series" are the oldest rocks now known on this continent.

Mississippi Valley.—Two of the great batholiths of Minnesota, the Vermilion and Giants Range granite masses, are described by Frank F. Grout and Ira S. Allison (*Journ. Geol.*, Vol. 33, pp. 467-508). In each, the differentiation of magmas produced a considerable variety of rocks.

The latest addition to the Geologic Atlas of the United States, under preparation by the U. S. Geological Survey, is Folio 219, descriptive of the Central Black Hills in South Dakota, by N. H. Darton and Sidney Paige. As customary in this excellent and valuable series, the geography, geology and mineral resources of the region are described in detail. Of general interest is the conclusion that the shapes of the Tertiary igneous masses have been greatly influenced by the structure of the rocks invaded by the Tertiary magmas.

Coastal Plain.—The contribution which the oil industry is making to detailed knowledge of geologic structure, especially in such areas as the Gulf Coastal Plain where the determination of structure solely from rock outcrops is extremely difficult if not impossible, is illustrated by a comparative study of well logs on the Mexia type of structure, made by Frederick H. Lahee (*Trans. Am. Inst. Min. and Metall. Engineers*, Vol. 71, pp. 1329-1350). The Mexia fault zone is 30 to 40 miles east of the Balcones fault zone, and the two bound a great graben which is broken by numerous minor faults and which extends for many miles across Limestone and Navarro counties, Texas.

Cordilleran Region.—Among the outposts of the Northern Rocky Mountains on the Great Plains in Central Montana are two small laccolithic masses, North and South Moccasin Mountains. The South Moccasin laccolith is described by Harold S. Palmer (*Am. Journ. Sci.*, 5th ser., Vol. 10, pp. 119-133). The Bearpaw Mountains, 60 miles farther north, are surrounded by a belt of faulted folds of rather unusual characteristics. Frank Reeves (*Am. Journ. Sci.*, 5th ser., Vol. 10, pp. 187-200) presents evidence that this folding and faulting is quite shallow; although the formations underlying the Upper Cretaceous strata were involved in the thrust, according to his interpretation, they responded without being folded or faulted in any manner that has found expression in the structure of the outcropping beds.

Describing the Wasatch Mountains, Hyrum Schneider (*Journ. Geol.*, Vol. 33, pp. 28-48) interprets the Wasatch Front as an initial fault-scarp modified by erosion, rather than a fault-line scarp, and affirms that some of the ranges in the northeastern part of the Great Basin are fault-blocks. In similar vein, George D. Louderback (*Bull. Dept. Geol. Sci., Univ. Calif.*, Vol. 15, pp. 1-44) concluded that the period of scarp production in the Great Basin, especially in the western portion near the Sierra Nevada, occurred during latest Tertiary or early Quarternary time. W. M. Davis has also considered the Basin Range problem (*Proc. Nat. Acad. Sci.*, Vol. 11, pp. 387-392) and corroborates these results.

Pacific Coast.—Richard N. Nelson described the geology of the hydrographic basin of the upper Santa Ynez River, Cal. (*Bull. Dept. Geol. Sci., Univ. Cal.*, Vol. 15, pp. 327-396). The region is in the Santa Ynez and San Rafael Mountains, and the report is an excellent study of an area, somewhat difficult of access, rugged, and of complicated geologic structure. The "structural dynamics of the Livermore region" is the title of a paper by Frederick P. Vickery (*Journ. Geol.*, Vol. 33, pp. 608-628) in which a portion of the California Coast Range, 40 miles southeast of San Francisco, is described.

Alaska.—Aniakchak Crater, discovered in 1922 on the Alaska Peninsula, 150 miles southwest of Mt. Katmai, was described by Walter R. Smith (*U. S. Geol. Survey Prof. Paper* 132-J) as a gigantic hole, averaging 6 miles in diameter, from which between 8 and 15 cubic miles of rock and lava is believed to have been exploded into the air. It is the largest known explosion crater in the world and the nearest counterpart to the craters of the moon. The annual volume descriptive of the mineral resources of Alaska (*U. S. Geol. Survey Bull.* No. 773) includes papers which discuss the geologic structure of various parts of that territory, written by J. B. Mertie, Jr., W. R. Smith and Kirtley F. Mather.

Naval Petroleum Reserve No. 4 occupies a vast and little known portion of the Arctic shore in the vicinity of Point Barrow. The third expedition of geologists of the U. S. Geol. Survey, dispatched to that area, spent the summer of 1925 there, and the report of the first expedition, led by Sidney Paige in 1923, was printed during the year (*U. S. Geol. Survey Bull.* 772). The low flat coastal plain is now known to be underlain by coal seams and to contain several seepages of oil, but its real value as a petroleum reserve seems still in doubt.

SELECT REFERENCES

Among the principal books of the year are the following:

DAKE, C. L., and BROWN, J. S.—*Interpretation of Topographic and Geologic Maps.* N. Y., McGraw-Hill.

JOHNSON, D. W.—*New England-Acadian Shoreline.* N. Y., John Wiley and Sons.

QUIRKE, T. T.—*Elements of Geology.* N. Y., Holt.

SHIMER, H. W.—*An Introduction to Earth History.* Boston, Ginn & Co.

EARTHQUAKES AND VOLCANOES

BY KIRTLEY F. MATHER
PROFESSOR AT HARVARD UNIVERSITY

Perspective.—During 1925 a greater number of persons in the United States were startled by earthquakes than during any previous year in the history of this country. For the first time in several years earth tremors shook the congested districts of the Eastern States, occasioning a marked though probably temporary increase of the average man's interest in seismic phenomena. Disasters from earthquakes occurred at Santa Barbara, Cal., Talifu, China, and Osaka, Japan, but in the perspective of history the year was not especially unusual.

NEW ENGLAND-MARITIME CANADA

Eastern Massachusetts was slightly shaken by an earthquake at 8:07 a.m., January 7, which originated not far off Cape Ann. China and bric-a-brac were hurled to the floors in towns north of Boston, and the quake was felt as far south as Providence, Rhode Island.

A very strong earthquake at 9:20 p. m., Feb. 28, alarmed the inhabitants generally throughout eastern Canada and New England. Tremors were felt as far south as Virginia and as far west as the Mississippi, but damage was confined to a narrow belt along the St. Lawrence River. The epicenter was probably about half way between Murray Bay on the St. Lawrence and Chicoutimi on the Saguenay River, in an uninhabited portion of the Laurentian upland (Hodgson, *Bull. Seismological Soc. Am.*, Vol. 15, pp. 84-99). Buildings were badly damaged and many tombstones overthrown at St. Urbain, Rivière Ouelle, and elsewhere upon the alluvial land bordering the St. Lawrence below Quebec. In that city the harbor works on the deep soil and filled ground of the "lower town" were considerably damaged although the quake was not alarming to persons half a mile away on the crystalline rocks of the "upper town." Similar influence of terrane characterized the quake in Boston; panic was narrowly averted in theatres and hotels on the filled ground where formerly were the Back Bay swamps, although in other parts of the city persons were quite unaware of the quake. Estimating the real intensity of this earthquake from the area affected and the damage in towns scores of miles from the epicenter, it appears dynamically of the same order as the Charleston earthquake of 1886. Freedom from loss of life and the comparatively slight property damage were due to the location of the points of origin, beneath an uninhabited wilderness rather than beneath a populous city.

Aftershocks.—The tremors of the February 28 quake were numerous and continued over a period of many weeks. In the first week more than a hundred tremors were noted in Pointe-au-Pic; on March 3 and 21, temblors were widespread in the St. Lawrence Valley. A shock was felt at Kamouraśka and Murray Bay on April 10 and another near the Saguenay River on April 25. The Murray Bay district was again shaken during the night of May 29; none of these tremors did any damage.

Eastern Massachusetts.—This section experienced a slight quake at 2:58 a. m. on April 24, which was felt throughout the area surrounding New Bedford, Marion, Middleboro and Brockton. A fainter and more local tremor rattled dishes at Lynn, Swampscott, and Salem, Massachusetts, at 12:51 p. m., May 4, but was not recorded on the Harvard seismograph, although only a few miles away.

Canada.—Another sharp tremor was noted at Kamouraska, Quebec, at 9:20 p. m., July 26. On October 9 at 8:58 a. m. central and southern New Hampshire was shaken by a local quake of moderate intensity which centered near Lake Winnipesaukee. Windows were broken at Ossipee, and chimneys were cracked at Sandwich, N. H., and Cornish, Me. Seismographs in the eastern states and Canada recorded a moderately severe quake at 6:00 a. m., October 19, but it has not been possible to determine its point of origin from the records and no report of damage nor of sensible vibration has been received. The earthquake may possibly have originated in the region of the St. Lawrence River, but that is by no means certain.

Slight earthquakes, accompanied by rumblings, were reported in the vicinity of Middletown and Hartford in the Connecticut Valley during the evening of October 29, about 8:00 a. m. on Nov. 14, and at 1:20 a. m., Nov. 16.

CARIBBEAN REGION

A tremor severe enough "to crack a few buildings" was reported to have occurred in Kingston, Jamaica, at 12:20 p. m., April 13, and another quake "caused excitement" in the same city shortly before 1:00 a. m., June 15.

EASTERN INTERIOR

A slight tremor was reported in Syracuse, N. Y., during the afternoon of April 7. A considerable area in western Kentucky, southwestern Ohio, southern Indiana and Illinois was disturbed by three distinct tremors at 10:06, 10:14 and 10:30 p. m., April 26, by the most widespread quake which has occurred in the Ohio-Mississippi valley in many years. The heaviest shocks were reported from the vicinity of Louisville and Owensboro, Ky., and small articles were upset at places as far north as Springfield, Illinois. A local shock broke a few windows in Edwardsville, Illinois, during the night of July 14-15, and about 6:00 a. m., September 2, Evansville, Ind., and adjacent parts of Kentucky were shaken for the second time this year.

WESTERN INTERIOR

Montana. — Central and western Montana and adjacent portions of Idaho and Wyoming were considerably shaken by sharp quakes at 6:23, 7:05 and 8:40 p. m., June 27. Many persons in Billings, Butte, Anaconda, Great Falls, Missoula, Livingston and Helena were panic stricken, and property damage totaling about $500,000 was caused in and near the Gallatin Valley. A few individuals were injured, but no lives were lost. Passenger trains were hemmed in by landslides along the transcontinental lines, and railroad tunnels were temporarily blocked by rock falls. The most intense shock was felt as far north as Saskatoon and Calgary, Canada, and as far south as Thermopolis and Casper, Wyo.

Several aftershocks were recorded, one of which, at 2:20 a. m., June 29, was fairly sharp at Helena. Another on July 10, about 8:00 a. m., was reported generally throughout central Montana, and again on July 20 at 10:08 a. m. a distinct shock was felt at Helena. Livingston and Bozeman were slightly shaken at 7:50 p. m., August 12, and a faint temblor was reported from the vicinity of Three Forks at 8:45 a. m., August 29. Other tremors in this train of aftershocks were felt at Helena at 3:45 a. m., September 19, at 2:30 a. m., September 30, and early in the morning of October 6. A slight quake was felt at Great Falls on November 8, at 12:07 a. m., and another shock occurred southwest of Sheridan, Wyoming, at 6:45 p. m., November 17.

Southern Kansas, western Oklahoma and the panhandle of Texas experienced a tremor about 6:10 a. m., July 30. Although the shock was felt over a large area, no damage was caused.

PACIFIC COAST REGION

California and Alaska.—A slight quake was felt in Los Angeles and surrounding towns at 10:15 a. m., January 10; no damage was reported. A very slight tremor occurred at Millbrae, Cal., at 1:05 a. m. February 10. Southeastern Alaska was shaken at 1:55 p. m., February 23, by the heaviest tremors which have been felt in that section for many years. The epicenter seems to have been at a point on the coast about 75 miles north of Valdez. A few chimneys were wrecked in Seward, water pipes and telegraph cables were broken, and buildings were rocked by two tremors which together lasted a half minute or more. The Sierra Nevada, northwest of Lake Tahoe, was shaken by several tremors on March 30, between 9:47 p. m. and midnight. The first shock was most severe, but caused no damage. Slight damage was caused by a quake at Calexico, Cal., on April 15, when three shocks were felt between 7:30 and 8:20 a. m. Other quakes shook Ketchikan, Alaska, at 2:30 p. m., April 29, and Los Angeles at 1:25 a. m., May 1. A very feeble shock was reported at Santa Rosa, Cal., May 10, at 5:04

a. m., and Los Angeles was again disturbed by an earthquake shock on June 12, at 2:18 p. m.

Santa Barbara.—A moderately severe earthquake destroyed or damaged a number of poorly constructed buildings in Santa Barbara and startled southern California at 6:44 a. m., June 29. Because of the emptiness of the business district at that early hour, only 12 or 13 lives were lost. Switches were pulled and gas mains closed by the engineers on duty in the power house so that no fire added to the seismic destruction reported as more than seven million dollars. The quake seems to have been caused by a slight readjustment of the earth's crust along a fault at the foot of the Santa Ynez mountains. The area of destruction was limited to a few acres, and the tremor was startling over an area which is only about 60 miles long and 10 miles wide. Dynamically it was therefore trivial in comparison with the St. Lawrence quake of February 28, which presumably originated much farther below the surface of the earth than did the Santa Barbara shock. Aftershocks were numerous and continued for several days. The stronger ones were felt on July 3 at 8:38 a. m., July 5 at 4:35 a. m., during the forenoon of July 10, and at 1:00 a. m. on July 11.

Later Coast Tremors.—San Francisco and the area immediately south of that city were shaken at 11:25 a. m., July 19, but no damage resulted from that temblor. Santa Barbara and vicinity were again slightly disturbed at 1:50 a. m., July 30. Anaheim, Glendale and other towns in southern California felt a very slight tremor about 2:00 a. m. on August 8, and Ventura reported a similar quake about 10:45 a. m. on August 12. Another light quake was reported from Seattle on August 14, and on August 30 Calexico was again shaken at 5:05 p. m. Other slight tremors occurred in San Francisco and Oakland at 7:30 a. m., September 30, in Santa Barbara at 4:30 p. m. on October 3, at 1:30 p. m. on October 9 and at 1:45 and 5:30 a. m. on October 30, and in Pasadena at 1:15 a. m. on October 5.

CENTRAL AMERICA

A number of quakes were felt in Central Mexico during the latter half of March and the first two weeks of April. Large areas in the State of Durango were shaken on April 1; Chalcahuites is reported to have been partially destroyed, and considerable damage resulted in Canutilla and Zuchil. Accurate reports are wanting, but there seems to have been some loss of life. A moderately heavy shock damaged some buildings in Managua, the capital of Nicaragua, on October 4 about 10:00 p. m.

EARTHQUAKE HAZARD

Research. — The events narrated have drawn attention to the facts that earthquakes may occur anywhere; that greatly increased research in seismology and earthquake hazard is essential to the welfare of crowded cities, and that "earthquakes are dangerous chiefly because we do not take adequate precautions against their effects, whereas it is possible to insure ourselves against damage by proper studies of their geographic distribution, historical sequence, activities, and effects on buildings" and on men. Only one seismograph has been in operation in New England, largely because of the false sense of security engendered by many years of freedom from startling tremors. During December, another seismographic station was installed, so that now both Yale and Harvard are thus equipped, but many more instruments are needed throughout North America.

Government Observation.—On January 31, the President approved an act of Congress authorizing the Coast and Geodetic Survey to make investigations and reports in seismology, and that organization soon outlined a tentative program of instrumental observations which it is hoped may eventually lead to the accumulation of data adequate for making earthquake predictions. At present, although the expectancy of loss and damage from earthquakes may be calculated from the seismic history and geologic structure of a region, there is no scientific basis for earthquake prediction.

Building Laws.—The Seismological Society's Committee on Building for Safety has submitted to the council of the City of Palo Alto, Cal., a "draft of general provisions to be inserted in any building code to secure better construction against earthquakes." Following the Santa Barbara quake a general tightening of building regulations was noted throughout California where the codes had of late years been increasingly lax. Earthquake insurance was written in large amounts, both on the Pacific Coast and in New England and New York State.

The Engineering-Economics Foundation.—This Boston organization, a post-graduate institution devoted to the study of emergency, did a real service by concentrating its resources upon the study of earthquake hazard. Research, held rigorously to observed, recorded and tested fact, provided organized knowledge which was used in teaching groups of engineers, hospital executives, public officials, and insurance men modern methods of meeting emergency so that earthquake loss of life and property might be reduced to a minimum. Records of past earthquakes in the New England-Maritime Canada region were gathered, and knowledge of present conditions in cities, which greatly increase the hazard from even moderate earthquakes, was notably advanced.

VOLCANOES

Mt. Lassen, commonly described as the only active volcano in the United States, maintained its customary calm throughout the year. A detailed report of its volcanic activity, containing a full description of the explosive outbursts of 1914 and 1915, prepared by A. L. Day and E. T. Allen, was published by the Carnegie Institution of Washington. Certain of the volcanic vents in the Aleutian Range and on the Alaska Peninsula were reported to be belching forth unusually large clouds of vapor during the latter part of the summer, but no distinct eruption took place.

Ometepe and Madera, twin volcanoes on an island in Lake Nicaragua, burst into eruption early in August, and ashes thrown from the two peaks spread ruin to nearby plantations. Earthquakes felt in Managua on April 14 were probably due to the activity of these volcanoes.

ECONOMIC GEOLOGY

By W. Elmer Ekblaw

Managing Editor, "Economic Geography," Clark University

Investigations and Results.—The field of Economic Geology has been a particularly busy and profitable realm throughout the year 1925. In exploration, in the development of new deposits and new methods, in the increased production and utilization of the world's mineral supplies, the year has recorded continued progress.

Technical and scientific work of the finest kind has been prosecuted by the national and state surveys and bureaus; and private, corporate, and institutional research and investigation have gone on apace. The United States Geological Survey and the Bureau of Mines have published the results of work accomplished in previous years, and have kept their staffs busily engaged in the field, laboratory, and library. By executive order, the division of mineral resources of the Geological Survey was transferred on July 1, 1925, from the Department of the Interior to the Department of Commerce.

This year's Bulletins of the Survey are rich in their record of valuable scientific achievement; the Water Supply Papers have been numerous and increasingly valuable; and the maps issued have revealed increased efficiency in field work and cartographic technique. *Geologic Folio* 219 (Central Black Hills, S. Dakota), by N. H. Darton and Sidney Paige, is a most valuable contribution to the economic geology of the country. The

Bureau of Mines has likewise achieved continued valuable results in the investigations over which it has charge, and its publications are all worth study. The State Surveys and Bureaus have added much of interest regarding the geological resources of their own regions.

Conservation.—A growing sentiment in favor of wise and intelligent utilization as the soundest policy of conservation seems to be apparent in all fields of geologic industry. In the case of our fuels—petroleum, gas, and coal; of our minerals, both metallic and non-metallic; and of our water supplies, the policy seems tending toward their present use as extensively as the needs of our people demand, with an ever increased prevention of waste, instead of saving them for future conjectural needs.

This tendency was clearly indicated by the consensus of opinion expressed at the Williamstown Institute of Politics by the members of the Round Table, of which Dr. C. K. Leith of the University of Wisconsin, was leader, on "Mineral Resources as a Factor in World Affairs." Though decrying unnecessary waste in every form, Dr. Leith and his colleagues were rather well agreed that laws and restrictions enacted to retard or restrict production and utilization of mineral reserves in opposition to contemporaneous demand might not be wise or beneficial.

The Round Table also discussed the desirability of the "open door" among nations, in the development of their mineral wealth, to promote peace among their peoples. By such an open door policy the monopoly of essential minerals by some power fortunate in the possession of great or exclusive supplies would not work to the harm or suffering of less fortunate nations. The United States, possessing almost incredible reserves of many of the world's most essential minerals, is in a peculiarly fortunate position, but even so, lacks adequate supply of certain other minerals critical in, or necessary to, some of her greatest industries. The United States has never closed her doors to the development of her mineral wealth by foreign firms or capital; but she finds that many of the unexploited possible deposits of the world are now being indirectly or directly barred to her scientists and her capital.

Geophysics.—To an extent never before attained, the year 1925 has been distinguished by the employment of geophysical methods, and geophysical equipment of exquisite precision and delicate adjustment to the discovery of mineral deposits. The use of the "Eötvös" gravity torsion balance has led to the delimitation of new and unsuspected salt domes in the Gulf coastal country and possible new oil fields of great promise; its use is being extended to metallic lodes and veins. The Lundberg-Nathorst method for the location of ore bodies depends upon the electrical conductivity of mineral deposits and the study of equi-potential lines, while the Schlumberger process for the same purpose depends upon electrical currents generated by the ore bodies themselves. Taussig's refined application of electrical oscillations in a wireless aerial suspended from an airplane or airship to the discovery of buried water bodies, petroleum pools, and mineral deposits suggests possibilities almost beyond credence.

Economic Geology, published eight times a year, continues to be the only American magazine that covers the field comprehensively. During the year 1925 the series of articles appearing in the magazine have been characterized by their wealth and diversity of material and excellence of form of presentation. The Society of Economic Geologists has coördinated research work as never before.

Metallic Minerals.—One of the outstanding publications that has appeared this year in the field of metallic minerals is R. H. Rastall, *"The Geology of the Metalliferous Deposits"* (London, Cambridge Univ. Press). General principles are discussed in eleven chapters, while occurrences of metals are discussed in nine more. It is a valuable and comprehensive work.

The significance of the great iron-coal districts of the world has become increasingly evident in the world's work. The great centers of industry, grouped about the fortuitous proximity of coal and iron deposits in the Ruhr-Lorraine industrial center, in the great manufacturing conurbation axially disposed about the Pennines in England, and in the equally great region of industrial activity of northeastern North America centered upon Pittsburgh, dominate the affairs of the world and make the North Atlantic Basin the dominant realm of the world's trade and commerce. The Pacific is never likely to become a major theater of man's activity; the entire supply of coal and iron fronting upon its waters is only relatively small in comparison with the reserves tributary to the North Atlantic.

The great economic and political problems and policies arising from the Ruhr-Lorraine fields are well treated by Guy Greer, in *The Ruhr-Lorraine Industrial Problem* (N. Y., Macmillan).

Significant developments in the metal industry have been the rapid rise to dominance of the Katanga copper district of Africa; the growing relative scarcity of lead; and the rapid increase in the use of specialized alloys, necessitating increased exploitation of zinc, tin, aluminum, tungsten and other similar metals. The precious minerals are being eagerly sought, but no striking discoveries mark the year 1925. The literature of the precious metals has been enriched by the publication of Adolph Knopf's "Geology and Ore Deposits of the Rochester District, Nevada," as Bulletin 762 of the United States Geological Survey, and other similar bulletins.

Non-metallic Minerals.—The use of the non-metallic minerals has grown spectacularly in the past quarter of a century. The rapid industrialization of the civilized nations of the world and the elevated standards of living have caused a demand unprecedented in the world's history. Most sensational of all has been the almost incredible quantity of petroleum produced and consumed each year. One of the valuable publications of the year is "American Petroleum; Supply and Demand," a report to the American Petroleum Institute, prepared by some of the most capable and influential executives in the oil industry, and from the view-point of the oil men as authoritative as it can be made.

The American Association of Petroleum Geologists has issued the ninth volume of its Bulletins, a most valuable and comprehensive series of technical and scientific papers concerned with the occurrence and development of oil deposits, by some of the most competent men in the field of geology. The Association works under a most rigid code of ethics, and the reports and papers of its members may be accepted as authoritative and conclusive. *The Oil and Gas Journal*, a weekly magazine devoted exclusively to the petroleum and natural gas industry, covers the whole field of exploration, production, preparation, and marketing.

The coal industry continues to engage the attention of the country. The strike of anthracite workers and the increased dependence of the prosperity of the country upon a continuous supply of coal have focused the eyes of the whole people upon the industry. A number of important books on the subject have come from the press. "What the Coal Commission Found" by W. Davis, published by the Waverly Press of Baltimore, and "The Case of Bituminous Coal" by Walton H. Hamilton and Helen R. Wright, issued by the Institute of Economics, present in an illuminating way the confusion and lack of coordination in the production of this essential commodity with which our country has been so profusely endowed.

With ever increasing scarcity of lumber, the rapid laying of new roads and building of new structures, and the more intensive development of all our activities, building materials of mineral source—sand, gravel, clay, gypsum, stone, and rock—are being used in greater and greater quantities, with no diminution of demand in sight.

Water.—As population increases, water as a factor in the world's economy becomes increasingly important.

Throughout the United States its value is being enhanced, whether for domestic use, for irrigation, or for power. The control of water supply, the protection of wells from pollution and watersheds from deforestation and erosion, the carrying of impounded waters from pure sources by great aqueducts to the congested centers of industry, have become problems of every municipality. Professional Paper 135 of the United States Geological Survey, by F. W. Clarke, is a valuable compilation of analyses from several thousand sources of the potable waters of the country.

Problems of irrigation and drainage must be solved in many places, if by these means the area of land possible for food and crop production is to be extended. Not only by the use of surface waters, but perhaps even more generally by artesian waters, some of our arid empire may be reclaimed.

Power.—The question of power engrosses the best engineering thought of the day. Programs of "super-power," "giant power," and "internationalization of power" have been proposed. George Otis Smith, Director of the United States Geological Survey, writing in *Economic Geography* for July, 1925, in a brief but exceedingly significant article, "A World of Power," points out the power potentialities of the world, and summarizes by text and illuminating chart the situation to-day, and as it may be later. Who would guess that Africa possesses 42 per cent. of the potential water power of the world, or why?

The most magnificent compilation of papers on the power resources of the world is found in the five volumes of the "Transactions of the First World Power Conference," issued in 1925 as the joint report of the delegates from forty political divisions of the world, from every nation concerned in the world's industries. It presents for the first time in adequate treatment, the primary significance of the world's sources of energy, their distribution and their relation to man's progress.

MINERALOGY AND PETROGRAPHY

By Herbert P. Whitlock
American Museum of Natural History

Crystal Structure.—Since the publication ten years ago of the highly important work of W. H. and W. L. Bragg, on X-rays and crystal structure (*Year Book*), each year has shown an increased interest and activity on the part of mineralogists and crystallographers along this line of research. Such results have been achieved and such possibilities opened up that it may well be said that many of the problems of physical and chemical mineralogy which have hitherto appeared obscure have, in the light of recent investigation, seemed within sight of solution, if not actually solved.

During the past year the literature of this important branch of crystallography has been enriched by two notable books in addition to the many short papers contributed to scientific magazines and journals. Sir William Bragg has written a popular résumé of his course of lectures, which were delivered at the Royal Institution in 1923-24, and which now under the title of *Concerning the Nature of Things* (N. Y., Harper's, 1925), renders available to the American reader an admirable exposition of the scope and significance of crystal structure. The work of Dr. Frederick Rinne, of Leipsig University, which has been translated by Walter S. Stiles and published under the title of *Crystals and the Fine Structure of Matter* (N. Y., Dutton, 1925), constitutes a book both far-reaching and important. Both of these texts are featured by illustrations of great clearness and in the case of Sir William Bragg's work of highly original and novel presentation.

Suggested Reforms in Mineralogical Nomenclature.—The nomenclature of mineralogy has always suffered from the fact that it grew rather than was evolved. Whereas the pioneers in the organic sciences early recognized the necessity of adapting to them a Latin nomenclature, understandable by scholars of every country and capable of indefinite expansion, the early laborers in the field of mineralogy were content to take what terms already existed in their own respective languages for the mineral species then known, and upon them to graft a national nomenclature. In this way there has resulted a deplorable lack of uniformity with regard to mineral names, the same mineral species often having many synonyms in various languages. Recognizing this situation a Committee on Nomenclature and Classification of Minerals was in 1920 appointed by the Mineralogical Society of America, which committee has recently issued a report (*Amer. Min.* 1924, vol. 9, p. 61), recommending certain changes in the nomenclature of minerals, based primarily on priority and uniformity as affecting American usage.

Dr. L. J. Spencer, writing in the *Mineralogist Magazine* (*Miner. Mag.* 1925, 20, p. 353), has reviewed the situation with more breadth of vision and, as far as the representative of a single nation can, has treated the subject with fairness. A perusal of these two attempts, however, will, in the opinion of the writer, render obvious the fact that no revision of the nomenclature that will in any measure be of universal scope can be accomplished except by the joint work of representatives from several nations, a situation which Spencer tacitly admits when he suggests that his list of revisions might be adopted by common consent by the Mineralogical Societies of England, France, Germany and America.

New Minerals.—During the year 1925 a number of new mineral species have been added to list. An outcrop of phosphate-bearing rocks near Hegendorf in Bavaria have yielded three new phosphates: an apple-green, hydrated phosphate of iron, which has been named *lehnerite; wenzelite,* a hydrated iron-manganese-magnesium-phosphate of a pale rose-red color; and *baldaufite,* an iron-manganese-calcium-magnesium phosphate, occurring in flesh-red crystals and resembling wenzelite in general color. A new silicate of the brittle mica group, called *rossmatite,* was found near Prilep in western Macedonia. To a new titanate and silicate of iron and serium, found in minute grains, in the Province of Minas Geraes, Brazil, has been given the name *kalkowskyn.*

There has been added to the long list of unusual minerals from Franklin, New Jersey, a new hydrated arseno-silicate of manganese, occurring in light brown masses, and named *schallerite,* after Dr. W. T. Schaller, of Washington, D. C. From Crestmore, California, another locality noted for the abundance of its new and rare species, comes a new hydrous calcium silicate, named *foshagite,* after Dr. William F. Foshag, also of Washington.

The name *metavariscite* has been assigned to orthorhombic crystallized variscite, a hydrated aluminum phosphate from the Lucin locality in Utah. A new hydrous calcium silicate was found in the vicinity of Kimberley, South Africa. This has been named *afwillite* in honor of Mr. A. F. Williams, General Manager of the DeBeers Consolidated Mines.

TERRESTRIAL MAGNETISM

By Daniel L. Hazard

Assistant Chief, U. S. Division of Magnetism and Seismography

Magnetic Surveys.—The magnetic survey of the United States is carried on under the direction of the United States Coast and Geodetic Survey. The work of the year has been principally the reoccupation of repeat stations for the determination of the change of the earth's magnetism with time, in the Philippine Islands as well as in the continental part of the country. With these additional secular change data it will be possible to reduce the results of past observations to 1925 and construct new magnetic charts for that date. The magnetic observatories at Cheltenham, Md.; Tucson, Ariz.; Sitka, Alaska; and near Honolulu, Hawaii, have continued in operation. The one formerly at Vieques, P. R., was discontinued on November 1, 1924, but a new one to take its place, near San Juan, P. R., will be in operation before the end of 1925.

Much of the field work of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington has also been devoted to the occupation of repeat stations, particularly in South America, Falkland Islands, West Coast of Africa and adjacent islands. Special observations of the diurnal variation at stations in southern South America have given some rather unexpected results. This Department has continued the operation of magnetic observatories at Watheroo, West Australia, and Huancayo, Peru, and has coöperated with New Zealand in the maintenance of the observatory at Apia, Samoa. The available funds of the Department were not sufficient to operate the ship *Carnegie;* but the need of secular change data over the ocean areas, as well as on land, is fully recognized and it is hoped that means will be found to put this specially equipped non-magnetic vessel in commission again in the near future. Canada has made a large number of determinations of the magnetic declination in connection with the survey of the public lands. It operates magnetic observatories at Toronto and at Meanook, Alberta. The latter has heretofore recorded only declination changes, but it is soon to be equipped with horizontal intensity and vertical intensity variometers also. In Europe a coöperative magnetic survey of the Baltic Sea and adjacent land areas has been in progress, re-surveys have been made of parts of France and Germany and plans have been made for a survey of Norway. Evidence of the reawakening of scientific activity in Russia is seen in the establishment of a meteorological and magnetical observatory at Tashkent and a geophysical observatory at Jakoutsk, Siberia, which will eventually include magnetic observations in its program. Even during the war and the subsequent revolutions, the work of the older Russian observatories appears to have been carried on, at least in part. A very important addition to the net of magnetic observatories is the one recently established by Denmark at Godhavn, Greenland. The magnetic observatory at Kew, England, after a notable existence of three-quarters of a century, has finally been discontinued because of electric car disturbance and replaced by a new one at Abinger. Amunden's ship *Maud* arrived at Nome, Alaska, on August 22, 1925, after three years in the Arctic, during which time a regular program of scientific work, including magnetic observations, was carried out.

Instruments.—The compensation of a horizontal intensity variometer for temperature by means of an auxiliary magnet has been worked out successfully by George Hartnell of the Coast and Geodetic Survey, in charge of the magnetic observatory at Cheltenham, Maryland. With both horizontal and vertical intensity variometers compensated for temperature, the construction of observatory buildings will be simplified, as a larger range of temperature in the magnetograph room will be allowable, and the work of reduction of the observations will be made easier. The Department of Terrestrial Magnetism of the Carnegie Institution of Washington has designed a compass variometer for the investigation of local magnetic disturbances, the detection of effects caused by hidden magnetic objects or materials and for registering magnetic intensity variations with high precision. In Japan the sine galvanometer, heretofore considered as an observatory instrument, has been used successfully in the measurement of horizontal intensity in the field.

Investigations. — Special observations were made at the time of the solar eclipse of January 24, 1925, at Greenport and Ithaca, N. Y., and Longs Corner, Ontario. Unfortunately there was considerable magnetic disturbance at the time, so that little additional information was obtained regarding the effect of an eclipse of the sun on the earth's magnetism. The Department of Terrestrial Magnetism of the Carnegie Institution of Washington, with the coöperation of the Geophysical Laboratory of the same institution, is studying the effect of pressure on the critical temperature of magnetization, working with pressures up to 2,000 atmospheres. The results thus far are not conclusive but indicate that there is no very great change in the critical temperature under pressure. It has also made a further study of magnetic storms which begin abruptly and found evidence that they do not begin all over the earth at the same instant, but that they occur first in low magnetic latitudes and progress toward the poles, possibly with a progression in longitude also. The detailed study of the area of remarkable local magnetic disturbance near Kursk, Russia, has been continued, with a large number of gravity, as well as magnetic, observations.

The annual meeting of the Section of Terrestrial Magnetism and Electricity of the American Geophysical Union was devoted to a symposium on the change of the earth's magnetism with change from lesser to greater altitudes.

METEOROLOGY AND CLIMATOLOGY

By Burton M. Varney

Weather Bureau, U. S. Department of Agriculture

General.—Continued international coöperation by this country in meteorological work is recorded in the discussion of the activities of the International Commission for the Investigation of the Upper Air (*Monthly Weather Review*, May), of the International Commission on Solar Radiation (*ibid.*, July), and of the Section of Meteorology of the American Geophysical Union (*Bulletin of the National Research Council*, vol. 10, no. 53, July).

Solar Radiation.—Weather Bureau records of total solar radiation intensity at the earth's surface find increasing applications; *e.g.*, heat energy measurements are now involved in determinations of variability of daylight by electric lighting companies. Researches by H. H. Kimball (*Mo. Wea. Rev.*, Oct., 1924) indicate that midday solar radiation is richer in luminous rays than radiation received either earlier or later, and that daylight intensities are measurable with an accuracy of ±5 per cent. by applying to radiation intensities, as measured by pyrheliometer, the illumination equivalents of a gram calorie per min. per cm.^{2} of radiation for various zenith distances of the sun. The well known increase in the proportion of long wave lengths of direct sunlight as compared with the short, upon decrease in apparent altitude of the sun, Kimball has shown to be reversed for total daylight (direct sunlight plus diffuse skylight—*ibid.*, March), the proportions of the blues and violets becoming slightly greater than that of the reds and yellows as the sun's altitude decreases. Total daylight is bluer in winter than in summer because in winter the dust particles and water droplets in the atmosphere are smaller and fewer, allowing better transmission, especially in the short wave lengths, of both direct sunlight and diffuse skylight. On the question of measurable day-to-day fluctuations in the "solar constant" (that is, of the intensity, expressed in appropriate thermal units, of the solar radiation as if measured just outside the earth's atmosphere with earth at mean solar distance), Abbot believes such fluctuations proved by his determinations based on bolometric measurements (Solar Variations and Forecasting, *Smithsonian Misc. Coll.*, 77, no. 5). Mathematical analyses of Abbot's latest published data by Marvin and Kimball (*Mo. Wea. Rev.*, July) and Clough (*ibid.*, Aug.) appear to prove that fluctuations of atmospheric transparency together with unavoidable errors in Abbot's highly refined measurements completely mask any possible short-period fluctuation in solar intensity. It is believed concerted international action to obtain at high-level stations pyrheliometric measurements of the highest possible accuracy would help to solve the important problem of solar variability. Such coöperation has been suggested to the commission on Solar Radiation of the International Meteorological Committee.

Aërology. — The use of airplanes for getting upper air observations was begun in April, the Weather Bureau and the Bureau of Aëronautics coöperating. Data for various levels up to some 3 km. on pressure, temperature, humidity, height and thickness of cloud layers, visibility, etc., are telephoned to the forecaster at the Weather Bureau upon the completion of each flight. V. E. Jakl analyzed (*ibid.*, March) the results of balloon flights undertaken by the late Dr. C. LeRoy Meisinger, who met a tragic death in the Spring of 1924 through the burning of his balloon. Jakl finds that the flights support conclusions from ordinary aërological observations to the effect that the making of daily free-air pressure maps, on the foundation laid by Meisinger's researches and balloon voyages is feasible and only awaits determination of truer normals for the free air than are now available. From a study of conditions in the free air leading to precipitation, Jakl (*ibid.*, Aug.) finds the view confirmed that whatever the season, rain-making processes ultimately bring about a stratification of the atmosphere, precipitation occurring only in those strata in which the fall of temperature with increase of altitude equals or exceeds the rate at which a body of air containing saturated water vapor would cool upon ascent. L. T. Samuels made an extensive study (*ibid.*, after Nov. 15) of kite and balloon observations over the United States to determine, for winter and summer, average conditions of all observed meteorological elements in four quadrants and the centre of well defined cyclones and anticyclones. Four among the many important conclusions reached are, that features differentiating cyclones from anticyclones in this country are most distinct below about 2 km.; that for corresponding sectors, season, and altitudes, the average wind velocities are greatest in cyclones; that the rate of increase of wind velocity with elevation in both cyclones and anticyclones decreases or even reverses itself beginning at some 500 m. above ground and extending to altitudes of 1,000 to 2,000 m. before resuming the increase with altitude aloft; and that the light winds characteristic of lower levels in the centre of anticyclones, normally give place to high winds aloft. W. C. Haines has developed a plotting board for compounding wind vector quantities, which gives highly accurate results and is rapidly operated (*ibid.*, Oct.).

Instruments.—The publication by R. N. Covert of "Meteorological Instruments and Apparatus Employed by the United States Weather Bureau" (*Jour. Optical Soc. of America and Rev. of Scientific Instruments*, 10, no. 3, March) presents an abundance of technical information in condensed form. S. P. Fergusson (*ibid.*, Jan.) discusses in detail the methods of measuring humidity. A rain-gage for direct measurement of precipitation, which may be constructed of standard commercial materials and parts has been devised (*Mo. Wea. Rev.*, Feb.). Apparatus for testing individually the cells used in aneroid barographs has been developed and constructed in the Weather Bureau laboratory. A new aneroid barometer of special form, and a new microbarograph, have been tested and found to possess features of merit, but to need further development. Plans are under way for obtaining snow-sampling tubes made of duralumin, valuable for its strength and lightness. These tubes are used in measuring the water equivalent of a snow cover for the purpose of forecasting prospective water supply. Several experimental thermo-electric pyrheliometers have been constructed with a view to obtaining larger current values and quicker response to sudden changes in solar radiation as received at the earth's surface. A more sensitive and enlarged solar-radiation register, for use in connection with the pyrheliometer, has been introduced.

Tornado Investigations.—A study of the frequency of occurrence of these storms within the United States, and of resulting loss of life and property, has been made by H. C. Hunter (*ibid.*, May). He discusses tornadoes from 1916 to 1923 inclusive, and summarizes previous tabulations. Seven hundred and fifty-four separate tornadoes are on record for the period. Annual occurrence ranged from 121 in 1917 to 65 in 1919. A tabular review of recorded tornadoes from 1889 to 1897 inclusive shows a total of 424, the worst year being 1893 with 83, the best 1889 with 21. The relative frequency indicated for the earlier period is doubtless deceptive, many storms going unreported because population, and hence opportunity for damage by tornado and for observing them, was smaller. For both periods together, there is record of the loss of 3,232 lives, attributable to 405 tornadoes out of the total 1,178. Aggregate property loss (both periods) is placed at $86,406,000, or an average of somewhat over $5,000,000 annually during seventeen years. And there were, between the periods, nineteen years for which there is no adequate record.

Tropical Cyclones.—C. F. Mitchell (*Mo. Wea. Rev.* Supplement No. 24) presents exhaustive data on the frequency, places of origin and movement of these storms for the West Indies. He finds that hurricanes never develop in the eastern two-thirds of the Caribbean Sea; they either come from far to the eastward, or originate in its western third. They normally recurve into the north and northeast at the first favorable opportunity offered by adjacent pressure distributions, irrespective of the time of year or longitude. In cases where their paths are erratic, the cause is found in the obstruction of the hurricane cyclone by moving anticyclones. S. S. Visher's monograph on tropical cyclones of the Pacific (*Bul. 20 of the Bishop Museum*, Honolulu) is a valuable assemblage of data and a most useful source book on the geographic aspects of storms of this type in the Pacific area.

Temperature Investigations.—Contributions have been made to the study of normal temperatures for the United States, of the frequency of occurrence of stated temperature changes, of temperature as an indicator of prospective rainfall, of methods for preventing occurrence of damaging temperatures in citrus orchards. Marvin and Day have prepared revised daily normals of temperature for 161 stations (*Mo. Wea. Rev.*, Supplement No. 25). For stations having forty years or more of record, the weekly averages of maximum and minimum temperature separately were subjected to a four-term Fourier analysis, on which was based the computation of fifty-two weekly normals. Between these were interpolated the intermediate daily values. The means between the two daily normals thus arrived at are believed to give a normal daily mean temperature of the highest precision. For stations with less than forty years, normal daily values of highest and lowest temperatures were got by drawing a smooth curve through fifty-two weekly averages. Smith and Stevens present (*Mo. Wea. Rev.*, July) a series of diagrams showing the probable frequency, by months, of given amounts of change between the 7 a. m. temperatures of successive days at Montgomery, Ala., the computation employing the Gram-Charlier frequency curve applied to 1,000 observations per month. C. D. Reed finds (*ibid.*, June) through correlation methods, that in Iowa, as June mean temperature goes, so goes the temperature of the next three months. And, eighty-three times out of a hundred, if the June temperature is above normal, July rainfall will be deficient, the rainfall deficit being about a third of an inch for each degree of temperature excess. This significance of June temperature holds with a probability of 70 per cent. or better, throughout a belt which includes Iowa, Illinois and Indiana and adjacent parts of the surrounding states. Results of field tests of certain extraordinary mechanisms devised for mixing the air in citrus orchards to prevent injury to the fruit by freezing, show that Mr. Barnum's famous dictum holds. F. D. Young finds (*ibid.*, August) that these machines are without exception failures, and confirms the view that the only sure means of obtaining complete protection is through orchard heaters, now developed to a state of high efficiency. W. J. Humphreys (*ibid.*, Dec., 1924) presents evidence from certain lakes in low latitudes, and in respect of the processes by which bodies of deep water are cooled, to show that the abysmal temperatures of a sea or lake are, when higher than that of maximum density, determined by, and substantially the same as, the annual minimum temperature of the coolest portion of its surface. Abysmal temperatures thus become indicators of the temperature factor in the climate of the recent past in the region, according as the bottom water is colder or warmer than the surface water at its coldest.

Forest and Agricultural Meteorology.—The effect of weather on forest-fire occurrence has received increasing intensive study. H. F. Gisborne (*ibid.*, Feb.), investigating relations between rainfall and the moisture in the top layer of duff (decaying leaves and twigs covering mineral soil on the forest floor) found that both daily and average inflammabilities vary markedly for different sites affected by the same weather. The weather factor alone, therefore, cannot be used as an index to fire danger. Diagnosis, by the duff hygrometer, of moisture conditions on individual forest sites now recognizes six degrees of inflammability, from none (wettest duff) to extreme (driest duff). Weather forecasts, applied to these inflammabilities on individual sites, give forecasts of the degree of fire danger for each site. At Priest River Experiment Station, Idaho, where the study was made, forecasts proved 82 per cent. dependable on dry sites, up to 88 per cent. on moist. Changes in other weather elements such as temperature or humidity while very important, never produce differences in inflammabilities sufficient to cause serious errors in forecasting fire danger as determined by dryness of fuels. J. A. Larsen (*ibid.*) finds from a study of the length of fire danger season at different elevations in Idaho, that this decreases with increase of elevation in belts corresponding to the forest zonation. For the lower western yellow pine forest (2,000-2,500 ft.) there is, in summers of subnormal rainfall, a possible season of 150 days, which decreases to 76 days for sub-alpine forests at 7,500 feet. In summers with normal rainfall the figures are 139 and 67 days, respectively. Time of beginning of fire season in Spring is normally much earlier at low elevations, because the increase of temperature, which largely controls the Spring drying of the forest floor, advances from low to high elevations. The end of the season is often simultaneous at all elevations on account of the advent of general winter rains or snows. In Washington and Oregon during the fire season of 1925, close coöperation between the Weather Bureau and forestry interests, through especially assigned officials, kept fire losses relatively low in spite of the hazard being one of the worst and longest continued in the history of Weather Bureau records in the region. A. J. Henry discusses at length "The Weather and Agriculture" in *United States Department of Agriculture Yearbook,* 1924 (issue 1925).

Business Meteorology.—In view of increase in rain-insurance business, the need for interpretation of local rainfall records is being more clearly recognized. Thus G. M. French for Los Angeles, W. F. Feldwisch for Springfield, Ill., and E. H. Loveridge for Honolulu (*ibid.*, December, 1924) have analyzed the distribution of rainfall through the day for each month, and presented their results in graphs and tables suitable to form the basis for computing insurance rates.

Climatology — Arctic. — Ward reviews (*Geog. Review*, July) an important monograph by Pollog on temperatures in the Arctic, which gives extensive bibliography, several pages of temperature data, and numerous illustrative temperature curves. *Tropical:* Visher (*ibid.*) discusses, with special reference to Australia and the

Pacific, rainfall conditions as handicaps to tropical development, from the point of view that yearly variability of rainfall leads to droughts and deluges, and the rate of rainfall often to excessive run-off, erosion and soil leaching, all of which necessitates nice adjustment of agricultural and other practice to rainfall conditions before the tropics can be successfully developed. *Medical:* Probably the paper of outstanding interest in this field to the layman is Dr. Rosenau's "The Seasonal Prevalence of Disease" (*Sci. Monthly*, February) in which a wide range of diseases is discussed in the light of their relation and lack of relation to climatic and weather conditions. In a group of papers on relations of the atmosphere to human comfort (*Mo. Wea. Rev.*, October) C. F. Brooks and E. C. Donnelly discuss empirical equations designed to indicate the cooling power of man under various weather conditions, and to provide a basis for classifying weather according to its effect on human comfort; Messrs. Howe, Nichols and Switzer discuss the distribution of weather types in Canada, the United States and Mexico.

The American Meteorological Society.—Membership in the Society shows a healthy growth. Officers for 1925 were: President, W. I. Milham; Vice-President, A. E. Douglass; Secretary, C. F. Brooks; Treasurer, W. R. Gregg. There have been four meetings during the year, those of January and May at Washington, D. C., that of August at Portland, Ore., and that of December at Kansas City, Mo., all except the May meeting being held with the American Association for the Advancement of Science. Announcement has been made that the first award of $100 from the Meisinger Aërological Research Fund, for an outstanding research in aërology by any one in the Americas, will be made at the winter meeting of the Society in December, 1926. The monthly Bulletin of the Society continues to thrive under the editorship of Dr. Brooks.

Bibliography.—The chief publication media in this country for meteorological and climatological papers, notes, abstracts, reviews, bibliographies, etc., indicating American and foreign progress in these fields, are: *Monthly Weather Review*, *Bulletin of the American Meteorological Society*, *Geographic Review*, and *Science*. Outstanding books of the year have been R. DeC. Ward's *The Climates of the United States*, lucidly written, excellently illustrated, abundantly supplied with bibliographic notes. C. F. Talman's *Our Weather; What Makes It and How to Watch It*, a splendid meteorology for lay readers; C. F. Brooks's *Why the Weather*, a series of stimulating popular notes on a wide range of topics. W. R. Gregg's *Aëronautical Meteorology*, bringing to practical aëronautics a much needed summary of recent aërological researches in their bearing on aviation problems.

PHYSICAL GEOGRAPHY OF AMERICAN LAND AREAS

By Wallace W. Atwood

President of Clark College and Clark University

Regional Geography.—Following a long period of concentration on the development of principles, the present tendency is a study of physical geography by applying the known principles to particular regions. As we look over the contributions to the science of physiography made during the past year it is conspicuously true that each writer who is active in the pursuit of field studies is concentrating on the study of a particular region. Some new principles may be evolved and some refinements to principles already well established may be made but the new and present phase of development in this science may be characterized as the regional phase, now that the major physiographic regions of each of the continents have been defined and published in map form. We await a thorough analysis of the physiographic history of many of those regions.

Relation to History.—Each problem in geography is in some way definitely related to a section of the earth's surface. No problem in human geography can be intelligently approached without a thorough appreciation of the physical landscape in which the human drama is being worked out. The development of regional geography is therefore a great step forward in the science of geography and in the contributions which that science is able to make to the related fields of study. The events of history have been influenced by their geographic settings. The location of towns, the growth of cities, the development of railroad routes and canals cannot be correctly interpreted without the background which is furnished by a knowledge of the physical landscape where human adjustments are being made.

Climate.—The climates of the world and the physical features of the landscape, including the soil mantle in the various physiographic units, are of prime significance in the understanding of many of the most vital problems now confronting the more crowded nations of the world. A knowledge of these physical factors is essential in guiding the settlement and utilization of the yet undeveloped parts of the world. Climate and relief will continue to be the chief factors limiting the utilization of the earth's surface. As more intensive utilization of the lands must come in many parts of the earth, the special significance of these factors and the limitations which they impose will be more and more clearly seen and appreciated.

Shore Line.—The most notable and easily the most significant and valuable contribution that has been made to the literature of physical geography during the past year is the report on the study of a shoreline made by Professor D. W. Johnson, *England-Acadian Shoreline* (N. Y., Wiley). This contribution is based on several seasons of field work during which the author has visited every section of the coast under consideration. In the Nova Scotia district, Johnson has found many of the major features definitely related to the fault lines in the geologic structure of that peninsula. Kennebec and Penobscot Bays, as well as Long Island Sound, appear to be directly related to these structural breaks in the region. The volume contains outline maps of the great nest of drumlins along the coast of Nova Scotia and those in Boston Harbor. He treats in detail the harbor at Marblehead and the tying of Marblehead Neck to the mainland at Lynn, and the tying of Nahant and Little Nahant with the mainland is made perfectly clear. The evolution of the Nantasket Beach is made especially clear with the help of maps. The evolution of the shorelines of Cape Cod is presented in detail. Martha's Vineyard and the curved spits or hooks and sand bars associated with Long Island and the entrance into New York Harbor, are here presented with notable clearness and accuracy.

Continental Glaciation.—Of great significance in accounting for the surface features due to continental glaciation is the recent study of Ernst Antevs, *Glacial Recession* (Canadian Geolog. Survey, Memoir No. 146). The geological evidence relating to the recession of the last ice-sheet from New England was studied by Antevs in 1921, and the results of the work were published by the American Geographical Society of New York in 1922. The present memoir is the result of an extension of these studies northward into Canada. The method of studying the ice-retreat is that of Baron Gerard de Greer of Stockholm. It is based on the annual layers of silt and clay deposited in lakes which bordered the ice-sheet during the period of retreat or melting back.

The work in New England showed that the recession of the ice-sheet from Hartford, Conn., to the region of St. Johnsbury, Vt., occupied a period of approximately 4,400 years. This period represents only a fraction of the time that has elapsed since the disappearance of the ice-sheet from New England. The relationship between the waning of the North American and European ice-sheets and the probable correlation of these events are briefly discussed. The view is advanced that the remarkable interruption in the retreat of the ice in the region between Lake Ontario and Mattawa river northeast of Georgian Bay, corresponds to the equally noteworthy interruption of the ice-recession in the Danish islands and southwestern Scantia. According to this view, the time that had elapsed since the ice retreated from the Mattawa region northeast of Georgian Bay is approximately 13,500 years.

Uplands.—Another study in regional physical geography is Frank J. Wright, *The Physiography of the Upper James River Basin in Virginia* (Virginia Geolog. Survey, *Bulletin* No. 11). The area includes the head waters of the James River of Virginia. Similar phenomena are observable in rolling upland country common in many parts of the Rocky Mountains. This is interpreted by recent students to be an old worn down plain developed by running water. The elevations which rise notably above this rolling surface are all recognized as monadnocks; they stand out conspicuously because of their superior resistance to agents of erosion. This question has been studied by Arthur Bevan in his article, *Rocky Mountain Peneplains Northeast of Yellowstone Park* (Journal of Geology, Aug.-Sept., 1925).

While engaged in the general geological survey of the section of the Alaska Peninsula northeast from Chignik Bay, the survey party came upon a most remarkable volcanic crater. It is nearly circular and has a maximum diameter of 6¾ miles. The lowest part of the crater floor is 1,100 feet above sea level and contains Surprise Lake, a body of water with an area of two square miles. The walls of the crater rise from 1,200 to 3,000 feet above the bottom of the crater. A beautifully symmetrical cinder cone, the summit of which is 2,200 feet above Surprise Lake, occupies the south-central area enclosed within the crater rim. This crater is described by Walter A. Smith with the title "Aniakchack Crater, Alaska Peninsula" in the U. S. Geological Survey, *Professional Paper*, No. 132-J.

Wall Maps.—A need has long been felt for a series upon which should be shown the major geographic regions of the world as defined on the basis of their relief features. To fill the gap Wallace W. Atwood has published during the year *The Physiographic Regions of the World* (Wall Maps with Manual, Chicago, Nystrom). The classification adopted is simple and universal in its application: 1. Lowlands and Interior Plains; 2. Uplands and Plateaus; 3. Old Worn-down Mountains; 4. Young Rugged Mountains. These four distinct types of relief form the basis for the sub-division of each of the continents into its primary physical regions. Each region forms a natural unit in the study of physical geography. Each large regional map is accompanied by a small inset map showing the relief features, another which carries the regional and seasonal distribution of rainfall and the prevailing coast winds, a third upon which the regional distribution of population is shown, and a fourth which is a land utilization map. A manual has been published to accompany these maps and the methods of solving geographic problems through comparative map studies has been clearly set forth.

OCEANOGRAPHY AND OCEAN EXPLORATION

By H. A. Marmer
U. S. Coast and Geodetic Survey

Meeting of Section of Oceanography.—In this country a number of organizations are engaged in various phases of oceanographic work. The Section of Oceanography of the American Geophysical Union, therefore, devoted the annual meeting on April 30 to a consideration of the status of American oceanography with a view to coördinating the oceanographic activities of the various organizations. Reports on the oceanographic work carried on by the Bureau of Fisheries, Smithsonian Institution, Scripps Institution, Navy Department, Carnegie Institution, and the Coast and Geodetic Survey were presented by accredited representatives. A resolution submitted by the Section and adopted by the American Geophysical Union endorsed the plan of a proposed U. S. Naval Expedition for research in oceanography.

Improved Instruments.—Of the improvements in methods and instruments used in oceanographic work, two deserve special mention. An improved form of depth-finding apparatus for sounding the ocean depths by acoustic methods—the so-called echo-sounding—was devised by Dr. H. C. Hayes of the Navy Department. The radio acoustic method of determining a ship's position in hydrographic work has in the past year been developed by the Coast and Geodetic Survey to give accurate determination of position to a distance of 200 miles from shore.

Scripps Institution of Oceanography.—During the past year the Scripps Institution for Biological Research of the University of California at La Jolla, California, was changed from a biological institution into an institution of oceanography, and its name changed to the Scripps Institution of Oceanography of the University of California. This gives the United States a research institution in oceanography that should do much to advance the science of oceanography. Four main divisions of oceanography are comprised in the Institution's work, namely, geological, physical, chemical, and geologic oceanography.

Sea Level.—The question of mean sea level has received considerable attention recently, studies showing that altogether apart from the rise and fall of the tide, the level of the sea varies not only from day to day but from month to month and from year to year. The daily and monthly variations are relatively localized in area, but the variation from year to year appears to be much the same over large areas. Along the Atlantic coast of North America there appear to be two prominent variations in sea level, one with a period of approximately four years and the other with a period of about nine years. The question of variation in sea level is especially important in geodesy, which makes use of mean sea level as its basic datum, and in the study of subsidence and emergence of coastal lands.

Amundsen-Ellsworth Polar Flight.—Under the leadership of Roald Amundsen this expedition planned to fly in two airplanes from Spitzbergen to the Pole, which was expected to be reached in seven flying hours, and if a landing could be made, to carry out observations there for 24 hours, and return to Spitzbergen. The two planes took off from Kings Bay, Spitzbergen, on May 21, and after eight hours flying half the gasolene had been used. A descent was made for bearings, which gave the position as latitude 87° 44′ N. and longitude 10° 21′ W. On landing the planes were locked in by masses of ice and it took the party more than three weeks to release one of the planes and prepare a runway. On June 25 the plane took the air and in 8½ hours reached North Cape on the northern extremity of North-East Land. During the flight northward and return, about 60,000 square miles of unexplored area was observed and at the point of descent, 160 miles from the pole, two soundings showed a depth of 2050 fathoms, which tends to confirm Nansen's idea of a deep polar basin. Three birds seen flying northwestward suggest the possibility of land lying in that direction.

Meteor Expedition.—In April the German Survey Ship *Meteor* left Wilhelmshaven for intensive oceanographic work in the South Atlantic and neighboring Antarctic, with a complement of experienced oceanographers aboard. The plans of the expedition call for detailed investigations in various fields of oceanography extending over a period of nearly two years. Oceanic circulation, both surface and subsurface, temperatures, densities, and gas content of the sea water, plankton, and geology of the ocean bottom are to constitute the principal studies. The vessel is fitted out with modern oceanographic apparatus, including several types of echo-sounding apparatus.

Discovery Expedition.—The South Atlantic and Antarctic will also constitute the field of work of the British Royal Research Ship *Discovery.* This vessel was built for Scott's first Antarctic expedition. After being thoroughly refitted she left England in July with a scientific staff for two years of oceanographic investigations. The principal object of the expedition is to obtain information bearing on the whaling industry, the cost of the expedition being met entirely from public revenues of the Falkland Island Dependencies, in which the whaling industry has recently made great strides. Oceanographic conditions in the waters frequented by southern whales are to be studied and intensive work is to be done on the whale feeding grounds. Echo-sounding apparatus is included in the equipment of the ship.

Maud Expedition.—After having spent three years in the Arctic Ocean, Amundsen's Polar expedition in the *Maud* returned to Seattle on October 5. The *Maud* froze in early in August, 1922, near Wrangell Island and drifted, frozen in, until August, 1924, when the New Siberian Islands were reached. Here she came free of the ice and turned eastward, spending the winter near the Medvezhi Islands. Under the scientific leadership of Dr. H. U. Sverdrup the expedition secured soundings and tidal observations, and a series of observations on tidal currents, temperatures, salinities, and gas content of the sea water, both surface and subsurface. The area covered by these oceanographic observations extends from Alaska to the New Siberian Islands. The tidal-current observations are especially valuable since they constitute the first systematic tidal current observations in the Arctic Ocean, and together with the tidal observations should help in throwing light on the question whether the vast unexplored area lying north of Alaska is part of the deep open basin of the Arctic Ocean, or whether it contains a large tract of land.

International Ice Patrol.—Beginning March 23 the U. S. Coast Guard resumed its annual patrol of the area of the North Atlantic most endangered by ice during the ice season. Two vessels, the *Modoc* and the *Tampa* alternated in cruising the ice region in the vicinity of the Grand Banks, the patrol ceasing on July 12. In connection with this patrol work considerable oceanographic work was carried out, consisting of soundings, currents, and salinities. In all 56 stations were occupied at which systematic observations from the surface to near the bottom were made. The electrical conductivity method of determining salinity was successfully used, and experiments were made on the locating of icebergs by means of echo-sounding apparatus.

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"Echo Sounding," *Special Publication No. 5.* International Hydrographic Bureau. Describes the general principles of echo-sounding and the various types of apparatus developed.

"Sea Level Along the Atlantic Coast of the United States and Its Fluctuations" in *Geographical Review,* July, 1925. Discusses the question of variation of sea level with particular reference to the Atlantic coast of the United States.

CARTOGRAPHY

By W. L. G. Joerg

Editor, Research Series, American Geographical Society

The present report covers not only 1925 but also the years intervening since the last report (*A. Y. B.*, 1919), as this period has been characterized by unusually valuable American contributions to the subject.

International Map of the World.—After a practical suspension of its activities during the war the newly established Central Bureau in Southampton (*A. Y. B.*, 1914, p. 606) published in 1921 its first report on the progress of the map. Others followed in 1922 (index map only), 1923, and 1924. Since the last sheets noted (*A. Y. B.*, 1915, p. 607; 1916, p. 608) 32 sheets, exclusive of the map of Brazil, referred to below, have been published by various countries. These sheets cover: in Europe, northern and central Sweden, southern Britain and western France; in Asia, all of India south of 24° N. lat., the Malay Peninsula between 20° and 4° N. lat., the main island of Japan south of 36° N. lat.; in Africa, parts of Portuguese East Africa and the Belgian Congo, and a strip of the Sahara from the mouth of the Senegal to the bend of the Niger.

Map of Brazil in 1: 1,000,000.—Designated as part of the International Map although issued by a private organization is a notable map of Brazil in 50 sheets in 1: 1,000,000, published in the extraordinarily short space of two years by the Club de Engenharia of Rio de Janeiro and engraved by the firm of Dietrich Reimer, Berlin. Although the map conforms with the International Map in its most distinctive feature, the representation of relief in altitude tints, the contours that are obligatory in that series are not employed.

Map of Latin America in 1: 1,000,000.—Likewise of governmental scope is the important undertaking begun in 1921 by the American Geographical Society of New York of publishing a millionth map of Latin America. While not claiming to be a part of the International Map it conforms with and even goes beyond the regulations of that undertaking. Its great merit lies in the fact that it is a critical compilation of source material, much of it unpublished, including surveys by commercial corporations. A diagram on each sheet showing the degree of reliability of the sources used and an accompanying textual discussion of these sources are invaluable innovations. To date eight sheets have appeared. The areas shown are: a strip between 66° and 72° W. and 8° and 28° S.; western Ecuador; Lower California (relief in contours only, interval 100 meters). One sheet (South C-19) has been published both in the Club de Engenharia and the American Geographical Society series and affords a criterion of comparison between the two methods.

Fundamental Maps of the United States.—Two basic maps of the United States are A. K. Lobeck's block-diagram map in 1: 3,000,000, 1921, on which relief features are represented in perspective on a geometrical base in a manner to reveal their origin; and a vegetation map in 1: 8-000,000 by H. L. Shantz and Raphael Zon (*Atlas Amer. Agric.*, Part I, Section E, 1924). The former should be studied jointly with the relief map mentioned in *A. Y. B.*, 1918, p. 638, and Fenneman's map of the physiographic provinces (*Annals Assoc. Amer. Geogrs.*, Vol. 6, 1916). What with these maps and Jefferson's cities map (*A. Y. B.*, 1918, p. 639), a body of standard map material is being established for the study of the physical geography of the United States as a whole.

Agricultural Atlases and the Dot Method.—Of the fundamental *Atlas of American Agriculture* being published by the U. S. Department of Agriculture under the supervision of O. E. Baker five instalments have appeared: Precipitation and Humidity, Frost and the Growing Season, Natural Vegetation, Cotton, and Rural Population. In this as well as the notable *Geography of the World's Agriculture* by V. C. Finch and O. E. Baker (1917), the distribution and amount of products, crops, etc., are shown by means of dots, a method which admirably combines the numerical quality of statistics with the synoptical character of generalized maps. This device is one of the important American contributions to cartography. Abroad it is more or less paralleled by, and has stimulated, the work of Professor Sten de Geer of the University of Stockholm (*Population Atlas of Sweden*, 1919).

Geographical Maps by the U. S. Geological Survey.—A measure of great importance is the Temple Bill, which passed both houses of Congress on February 27, 1925, (68th Congr. *Public.* No. 498, HR 4522). It provides for the completion of the topographic map of the United States by 1945. Other than an increasing number of sheets of this routine but fundamental map, the U. S. Geological Survey has published a number of maps of general geographical interest: maps of Ohio, Kentucky, Arizona in 1: 500,000 with relief in shading by J. H. Renshawe and, on the same scale, contour maps (interval 100 meters) of Arizona and New Mexico by N. H. Darton and a geological map of New Mexico. The 1: 500,000 state base maps (*A. Y. B.*, 1915, p. 607) now cover all the states except California; reductions to 1: 1,000,000 are also available of many states. An important product of war-time investigation is the Survey's *World Atlas of Commercial Geology* (1921). Part I deals with mineral resources, Part II with water power.

Bathymetric Chart Based on Echo Soundings.—The far-reaching importance of the sonic depth finder perfected by Dr. C. W. Hayes, research physicist of the Navy, is illustrated by the map issued by the Hydrographic Office (*Chart* No. 5149) in 1: 850,000, showing the relief of the ocean bottom off the coast of California from San Francisco to San Diego up to a depth of 2000 fathoms. The sonic depth finder opens up a new era in deep-sea sounding and the interpretation of submarine structure.

Air Route Maps.—An important series of maps has just (1924) been published by the Air Service. They consist of strips about 80 miles wide on the scale of 1: 500,000 along the following routes: Boston-Washington, New York-Chicago-Omaha, Norfolk-Washington-Dayton-Champaign (Ill.), Cincinnati-Kansas City-San Antonio, Montgomery-New Orleans-El Paso-San Diego. They show relief in green and brown altitude tints, main roads in white, towns in red. Details of landing fields are shown on the margins. For some areas this map affords the first adequate representation of relief on the scale of a general map.

Educational Maps.—The post-war period has seen the development of an American school of wall-map production, emancipated from European engravers and publishers (for a discussion see *Geogr. Rev.*, July, 1924). The most distinctive series is a set of American history wall-maps by Professors A. B. Hart and H. E. Bolton (1918-21). Professor J. Paul Goode has brought out (1923) the first American school atlas engraved in the United States since the development of modern geography.

Post-War Atlases.—This period, with its international readjustments, has also stimulated the atlas field. New editions of the standard atlases have been published (see comparative review in *Geogr. Rev.*, Oct., 1923); *Stieler*, 10th ed., Gotha, 1925; *Andree* (see *A. Y. B.*, 1915, p. 608), 8th ed., Leipzig, 1922; *Atlas Universel*, 2nd ed., Paris, 1922; and in the *Times Atlas* (London, 1922) an atlas comparable to these Continental atlases has been created for English-speaking people. The *Times Atlas* is further distinguished by the fact that relief is shown in altitude tints. In addition to these customary general reference atlases, the period has developed a new type, atlases of economic geography. The two best of this class are by M. Baratta and L. Visintin, the *Grande Atlante Geografico* (2nd ed., Novara, 1925), and by George Philip and T. S. Sheldrake, *Chambers of Commerce Atlas* (London, 1925).

EXPLORATIONS IN THE AMERICAS

By Robert M. Brown

Professor of Geology and Geography, Rhode Island College of Education

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MacMillan Arctic.—The outstanding American exploration from the standpoint of popular interest and also from the standpoint of achievement was the MacMillan Arctic Expedition. The expedition was particularly well equipped: airplanes to explore the Arctic areas, especially the stretch of unexplored region lying north of Alaska, radios by which contact with headquarters in Washington could be maintained, cameras for color photography of native life, birds and the Arctic flora, instruments for recording atmospheric and tidal phenomena, and equipment for preserving many natural history specimens.

The MacMillan party left Maine on two vessels, the *Peary* and the *Bowdoin* during the last week in June, 1925, and returned in October, making a record in time as well as in accomplishments.

Three Navy airplanes were carried by the party and it was the hope that some of the great area of unexplored territory lying between the 120th West and the 130th East meridians and north of the 70th parallel might be reduced in amount. A wedge of the map of the Arctic regions between the 60th West and the 90th West meridians culminating at the Pole observed by Peary; an extensive stretch north of Europe covered largely by Nansen but also penetrated by others; and Northern Greenland and Grant Land, make up the sum of the area marked "known" north of the 80th parallel. Within this circle at least 60 percent is unknown, and south of it is one-half as much more of unexplored area.

The planes were much restricted in the consummation of the plans because of unprecedented and persistent fogs, cold and snow. It was not possible to establish bases on the edge of the Polar sea from which to explore this million square miles of unknown area; on the contrary the planes were kept close to Etah, the headquarters of the Expedition. Flights of the airplanes were limited in time and distance. Even so, some 6,000 miles of distance were covered by the planes,—much of it a repetition,—and about 30,000 square miles of area is estimated to have been seen by the fliers which resulted in the discovery of an uncharted mountain range. In addition, a beginning was made in air-current knowledge.

That the expedition did not accomplish its entire program is not strange since an excessive amount was planned for it during the short stay in the Arctic. The failure of the airplanes to realize their hopes gave rise to the report of general failure and the abandonment of the project. In other lines than the air service, the program was amply executed and the results when the observations have been analyzed will be of great moment. The Expedition had this unique feature, namely: of being the first Polar Expedition in daily contact with the press. The value of the radio in explorations of this kind proves to be considerable from the point of view both of explorers and of the public.

Scientific Results. — The National Geographic Society, under which with the coöperation of the Navy the expedition was undertaken, sums up the scientific achievements which make a very considerable addition to the knowledge of Polar conditions. First, it mentions the observations of Dr. Koelz in collecting specimens, some of them rare and a few heretofore unknown, including several species of gulls, Arctic hawks, land animals and fish. Second, Mr. Francis, chief aërographer, collected meteorological data which will have immediate effect in the United States in aiding the forecasting of the weather. It is claimed that no such thorough study of Arctic air conditions relating to the ordinary storm development and especially to the currents of the upper air have before been undertaken. If the future exploration of the Polar Regions is to be largely by some form of air craft, as both this Expedition and the Amundsen trial seem to indicate, such records will be of invaluable service and their extension a demand in the near future. Third, Lieutenant Riggs of the United States Coast and Geodetic Survey conducted a series of observations of tides, currents, temperature and salinity of the ocean waters. These observations are less easily translatable into immediate benefits to mankind but their total adds to the knowledge of oceanic conditions.

Southwest.—No other American expedition gained widespread notice during the year. A number were quietly at work in various fields of the Americas, and among these were:

1. The excavations begun in 1920 at Pueblo Bonito in Chaco Canyon National Monument, New Mexico, under the auspices of the National Geographic Society were continued. Here a massive communal dwelling estimated to contain at one time about 1,200 persons has been uncovered and enough equipment found to partially reconstruct the life of the people that flourished here some 500 years before the discovery of America. The present year's accomplishments are the establishment of a definite pottery sequence for the period of Pueblo Bonito's history and the indications of a foundation series which remains yet to be excavated.

2. A similar piece of work to the above was the Heye Foundation's excavations of Pueblo Grande in the southwestern part of the United States which is claimed to be the oldest town in North America north of Mexico, having existed about 2,000 years ago. It is established that in that day, according to the results of the excavations, the ancestors of the modern Pueblo tribes knew the arts of building permanent dwellings, of weaving cloth, of making pottery, of improving agriculture, and of developing such other arts as years afterwards made the Pueblo the highest civilization in America.

3. Under the auspices of the American Museum of Natural History, New York, two similar types of work are in progress. Investigations were conducted at Globe and Superior, Arizona, and prehistoric dwellings of large size are reported to have been discovered. In another locality the work begun two years ago in the Canyon del Muerto has been continued and remains of a very early people, the Basket Makers, have been revealed.

4. The Captain Field Paleontological Expedition to Argentina returned to Chicago early in the year with three collections of fossils which are expected to exemplify the order of extinct mammals peculiar to South America.

OTHER EXPLORATIONS OF INTEREST TO AMERICANS

By Robert M. Brown

Professor of Geology and Geography, Rhode Island College of Education

Mongolia.—The Third Asiatic Expedition of the American Museum of Natural History under the leadership of Roy Chapman Andrews reached San Francisco early in November. The field of operation was the Gobi Desert in Mongolia with the adjacent foothill country bordering the southeastern base of the Altai mountains. The expedition traveled about 5,000 miles of which about 2,000 were in unexplored country. The chief objective was the search for records of early man. No actual proofs were available that any very early man ever roamed these regions but in the adjacent territories there have been found some evidences of early inhabitants. Complete returns of the success of the expedition are not yet available officially, but newspaper accounts agree that considerable history of the Stone Age was uncovered; crude stone implements found; much additional fossil remains of reptilian and mammalian life added to the collection; and some evidences of rare and unusually early mammalian life exposed. One account further adds that evidences of a great redwood forest that might have covered the entire area of Mongolia were unearthed. The officials of the American Museum of Natural History content themselves with the report that this season's fossil collections probably exceed in importance those of any other year. These expeditions into the interior of Asia in search of records of greatest antiquity are the prominent undertakings in paleontology during 1925.

Himalayas.—Another expedition of great popular interest is the James

Simpson-Roosevelts Field Museum Expedition to the Himalayan regions of southwestern Asia. The three principals, Theodore Roosevelt, Kermit Roosevelt, and George Cherrie, are expected to carry on the Roosevelt tradition of hunting big game; and largely in this fact lies the reason for the general interest in the project. The party entered the Himalayan region from Karachi in northwestern India early in May where a railroad bore them to Rawal Pindi, from whence they proceeded by motor to Srinagar, capital and center of the Vale of Kashmir. From this point the expedition sets out into the mountains.

The object of the expedition is to obtain as complete a collection of the animals and birds of the region as possible. Special stress has been laid on the ovis poli. This animal is believed to be the "Great Sheep" of Marco Polo's writings and no specimen is known to be in America. The animal is said to inhabit crags and glaciers considerably remote from human travel and appears to have been but sparingly seen. The list of other animals which will be the object of the search by the three hunters are strange of sound and to the bulk of mankind mythical. They are the markhor, various species of ibex, the goa, the scharpoo, the goitered gazelle, the Yarkand stag, the snow leopard, and the long-haired tiger.

Two of the principals, Kermit Roosevelt and George Cherrie, were members of Col. Theodore Roosevelt's River of Doubt expedition in Central Brazil. In addition, Kermit Roosevelt was with his father in Africa. The party has then considerable accumulated experience in this type of work.

Amundsen's Aërial Arctic. — A third expedition of 1925 of wide popular interest was Amundsen's flight towards the North Pole. Officially this was the Amundsen-Ellsworth Expedition and it was under the sponsorship of the Aëro Club of Norway. The expedition was equipped with two Durnier-Wahl all-metal hydroplanes fitted with skis to land on ice, and capable of carrying in addition to the equipment three men. The plan to use Spitzbergen as a base and to conduct trial flights were carried out. The distance from Spitzbergen to the Pole is 600 miles which should be accomplished in about seven hours. If the party reached the Pole, a twenty-four hour halt was a part of the program in order to make observations. If difficulty was encountered, the plan was to reach the Greenland coast where Amundsen had a cache at Fort Conger. If this flight proved successful, a second one across the Pole to Alaska was projected. The distance is 1800 miles or about 21 flying hours across the Pole from Spitzbergen to Alaska.

Favorable conditions for the flight were promised and on May 21, the planes left Spitzbergen; within an hour the expedition encountered fog but rose above it and in two hours the party were in clear weather again. After flying eight hours an open-water lead was seen and a descent was made in order to get bearings. One plane was immediately caught in an ice jam and the second plane was soon locked in the ice. This was in Latitude 87° 44′ North, about 160 miles from the Pole. It was estimated that 611 miles had been covered in the eight hours, or enough to have easily reached the Pole,—the extra distance of about 190 miles is accounted for by the headwinds which caused a drift of the planes. The labor of extricating one of the planes from the ice occupied the next three weeks while the world waited for news. After a number of failures, the party were able to clear a space on the floe large enough for a take off. On June 15, after a flight of nine hours, the party reached the northern end of Spitzbergen and two days later they were at King's Bay, the starting point. Apart from the experiments in the use of airplanes, Amundsen's task was a geographical exploration of the Norwegian section of the Arctic region. As in the case of the MacMillan flights unknown land areas were looked for but no indications were noted. On the contrary, excessive depths of the Polar ocean were recorded at the point of landing.

Difficulties.—It would appear that the problem of aërial navigation near the Pole is beset with certain mechanical difficulties; chief among them are the problems of steering a course and of finding geographic position. The use of the compass in high latitudes embodies a knowledge of location so that the correction (magnetic declination) may be made, and furthermore in positions so near the magnetic pole, the vertical component of the earth's magnetism is stronger than the horizontal. In order to overcome this difficulty both Amundsen and MacMillan used a solar compass. "This instrument, provided the flight is maintained on a given meridian, indicates to the navigator true north, for once the instrument is set a clockwork mechanism automatically corrects for the constant change in the sun's hour angle." The second problem of finding one's position has been partially solved by various instruments which give distance, direction, speed, and drift data so that a process similar to dead reckoning is used. The use of the sextant, the best known instrument for this purpose, is not adapted to the conditions offered in flying.

Arctic Future. — The problem of flights is at the dawn. The two Polar expeditions were unusually fortunate when it is remembered that Polar expeditions have only recently been launched without casualties and that flying under the best of conditions has not been long reasonably safe. Landings, especially forced landings, would apparently wreck any expedition if the ice conditions about the Pole are as bad as have been reported in all Polar trips, and landing in open lanes was in Amundsen's case close to tragic. The explorations from the air in the case of Dr. A. Hamilton Rice's Expedition in 1924 from Manaos up the Negro, Branco, Uraricuera and Parima rivers in Brazil demonstrated how much may be accomplished in comparison with the slower process of boats or animal power. It is confidently expected that successes similar to the Brazilian successes will attend polar flights in the immediate future.

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DIVISION XXXI
CHEMISTRY AND PHYSICS

INORGANIC AND PHYSICAL CHEMISTRY

By Hugh S. Taylor
Professor at Princeton University

New Elements.—The number of elements which remain to be discovered has this year been still further reduced from four to two. Noddack and Tacke have announced to the German Chemical Society the discovery of Elements, Nos. 43 and 75 respectively, the eka-manganese elements of the seventh group of the periodic table. For these elements, the discoverers have suggested the names masurium and rhenium. They have been discovered, as was hafnium, by the X-ray method of analysis due to Moseley. The search was made among platinum ores and was successful in the mineral columbite. No data are yet available to indicate any actual separation of the elements, the identification being made from the position of the characteristic X-radiations of the elements in question.

Other Elements.—The new element, hafnium, has been the subject of intensive study both as to physical and chemical properties. It gives promise of commercial importance as a useful metal for filaments as a source of light or for thermionic emission. A wealth of patents have been filed on methods of separation, preparation and purification (e.g., Br. Pat. 219034; 219327). Thorium in a ductile form has been developed by the Westinghouse Electric Company's Research Laboratories; and tantalum in commercial quantities by the Pfannstiehl Company. A new process of chromium plating due to C. G. Fink has reached an important stage of commercial development. The same worker is responsible for an electrochemical process for the renovation of antique metal articles which are badly weathered.

Transmutation.—Efforts at transmutation of the elements have centered this year on the effort to obtain gold by electrical bombardment of mercury. The most positive results are given by Miethe (*Naturwissenschaften*, Vol. 12, pp. 597 and 1211), who obtained amounts, capable of being weighed and analyzed, from the residual mercury in a mercury vapor lamp after operation at high voltages. Other German scientists have announced negative results but Miethe in a recent lecture (*Deut. Chem. Ges.*, June, 1925), maintained his stand and gave the results of atomic weight determinations of the gold. Nagoaka (*Nature*, vol. 116, p. 95), similarly reports gold from mercury arcs struck under paraffin oil with a potential of 15×10^4 volts/cm. at the moment of discharge. In one set of experiments iron and mercury electrodes were used, in the other tungsten and mercury. The method of test for gold was the production of ruby glass.

Reactions of Inert Gases.—Numerous reports of combinations of mercury with helium have been made. Manley (*Nature*, vol. 114, p. 861, vol. 115, p. 337), reports a helide of the formula HgHe, stable below red heat formed by combination in the glow discharge. Boomer (*Nature*, vol. 115, p. 16) examined mixtures of helium with mercury, iodine, sulphur and phosphorus under electron bombardment, at surfaces cooled in liquid air. Evidence obtained points to the formation of solid compounds having vapor pressures of the order of 0.0005mm. Hg at —185° C. The compounds decompose on elevating the temperature. Joos (*Naturwissenschaften*, Vol. *13*, p. 697) suggests that mercury helide is formed from helium in the 2S and mercury in the $2p_3$ metastable states. He states that mercury-neon compounds are possible. The compounds are of the ozone type, a glow discharge being essential in the preparation.

Atomic Hydrogen. — Considerable attention has been devoted in the preceding year to the chemical properties of hydrogen in the atomic condition. Hydrogen atoms may be prepared by passing a high tension discharge through rarefied hydrogen molecules the atoms being drawn off from the middle of the discharge tube by a vacuum pump system (Wood, *Proc. Roy. Soc.*, 102A, 1). The atoms may also be produced by collision of excited mercury atoms with hydrogen molecules (Cario and Franck, *Z. Physik*, Vol. *11*, p. 162). It has been shown by Bonhoeffer (*Z. Physik. Chem.*, Vol. *113*, p. 199), that atoms produced by the first method readily react with sulphur, arsenic and phosphorus at room temperatures giving the corresponding hydrides. The atoms readily reduce metallic salts to the free metals, in contact with which, atomic hydrogen is catalytically converted to the molecular form. Marshall has shown (*Jour. Phys. Chem.*, Vol. *28*, p. 842), that the atoms also react at room temperature with unilluminated chlorine yielding hydrogen chloride, an observation of importance in the problem of the hydrogen-chlorine combination. Dickinson, using the Cario-Franck method of preparation, has shown (*Proc. Nat. Acad. Sci.*, Vol. *10*, p. 409) that the atoms combine at room temperatures with oxygen. Taylor and Marshall (*Jour. Phys. Chem.*, Vol. *29*, p. 1140), have shown that many hydrogenation processes may be achieved with the atoms so prepared. With unsaturated hydrocarbons, the atoms seem to yield the corresponding free radicals, for example, ethylene, the ethyl radical. Wood's method of preparation had indicated that collisions of hydrogen atoms only infrequently resulted in the production of molecules and that recombination was in the main secured at contact surfaces. Bonhoeffer's data confirm this.

Atomic Bromine.—A similar observation has now been made with respect to the recombination of bromine atoms. From photochemical studies of the hydrogen-bromine combination and of the thermal reaction in presence of iodine as an inhibitor Bodenstein and his co-workers (*Z. Elektrochem.*, Vol. *30*, p. 416; Z. *Physik. Chem.*, Vol. *114*, p. 208), have shown that only about one collision in every thousand between bromine atoms results in molecular combination. This efficiency is materially higher than the collision efficiency in molecular processes where, for example, with hydrogen iodide at 556° Abs., the efficiency is 1 in about 10^{18} collisions. Nevertheless, the atomic efficiency is less than recent theories have assumed. It was formerly believed that every such atomic collision would be fruitful in the production of molecules.

Molecular Bromine.—This grows scarce owing to its extended use in the organic chemical industry and especially in the preparations of lead tetra-ethyl, the antiknock for motor fuel. A method of extraction from sea water has been developed by the DuPont Company according to C. M. Stine (A. C. S. meeting, Los Angeles, 1925). The bromide in sea water is treated with chlorine and the resulting bromine converted to insoluble tribrom-aniline, which is then recovered in filter presses. The experiments conducted at sea, in the Gulf Stream, demonstrated the practicability of the process at prevailing prices.

Bromination.—An important study of the effect of substitution on the rate of bromination of certain aromatic amino and phenolic organic compounds has been made by Francis, Hill and Johnston (*Jour. Am. Chem. Soc.*, Vol. *47*, p. 2211), which may lead also to methods of determining the rate of very rapid reactions. It has been shown that the rate of bromination is in harmony with the idea that there is intermediate substitution in the side chain. Directive influence of substituent groups is not easy to specify. Monobromphenol is produced preferentially in mixtures of bromine with equi molar phenol and aniline. Then tribrom-aniline is produced and finally tribromo-phenol.

Nitrogen Pentoxide.—The decomposition of this compound has again received extended experimental investigation (Hirst, *Jour. Chem. Soc.*, Vol. *127;* White and Tolman, *Jour. Am. Chem. Soc.*, Vol. *47*, p. 1240; Hunt and Daniels, *ibid.*, Vol. *47*, p. 1602). The new work confirms the older view of Daniels and Johnston (*Jour. Am. Chem. Soc.*, Vol. *43*, p. 53), that the process is truly unimolecular, the velocity of decomposition being independent of molecular collisions or pressure over a 7,000 fold variation in the latter. The mechanism of the decomposition process is again a matter for discussion since various efforts to promote its decomposition by infra-red radiation introduced photochemically have failed to accelerate the decomposition process at a given temperature. The literature on the radiation theory grows apace (G. N. Lewis and Smith, *Jour. Am. Chem. Soc.*, Vol. *47*, p. 1508; Tolman, *ibid.*, Vol. *47*, p. 1524; J. Rice, *Faraday Soc. Symposium*, Oct., 1925), without much material progress, beyond an abandonment of the simple theory that only a single infra-red wave-length has any activating efficiency.

Nitroso-Nitrogen Trioxide. — A new oxide of nitrogen has been prepared by R. L. Hasche (*Jour. Am. Chem. Soc.*, Vol. *47*, p. 2143), from the interaction of nitric oxide and oxygen at liquid air temperatures. It has the formula $(N_3O_4)_x$ and evidence is given which suggests that x=2. Such a peroxide is presumed to be an intermediate in the oxidation of nitric oxide, a reaction which shows a negative temperature coefficient, which abnormality can best be explained on the assumption that such an intermediate is more stable at lower temperatures.

Chlorine Hexoxide. — Bodenstein, Harteck and Padelt (*Z. unorg. Chem.*, Vol. *147*, p. 233), have confirmed the existence of Cl_2O_6, a deep red liquid formed by exposing ClO_2 to light. Its m.p. is $-1°$; density $= 1.65$ and reacts violently with water, forming chloric and perchloric acids. It ignites wood and alcohol and is highly explosive when mixed with other chlorine oxides. It is also formed by the action of red light on a mixture of ozone and chlorine, but not by blue light, which causes chlorine activation and ozone decomposition.

Ozone Decomposition.—There has been a renewed interest in the decomposition of ozone, which is one of four known bimolecular homogeneous thermal gas reactions, the others being the decomposition of hydrogen iodide, nitrous oxide and chlorine monoxide. It has long been known, also, that ozone is sensitive to ultra violet light. Recently it was shown by Griffith and Shutt (*Jour. Chem. Soc.*, Vol. *123*, p. 2752), that it was sensitive to red light also. Griffith and MacWillie (*Jour. Chem. Soc.*, Vol. *123*, p. 2767), indicated that this reaction was accelerated by admixture of such gases as helium, argon, nitrogen, carbon dioxide which might have been regarded as inert constituents. Griffith and McKeown have recently shown (*Jour. Chem. Soc.*, Vol. *127*, p. 2086), that the thermal reaction is similarly sensitive to such "inert" admixtures. The problem arises as to what is the mechanism of this interesting "catalysis." Kistiakowski has recently shown that all these gases inhibit, but less so than oxygen. A negative effect is attributable to the oxygen concentration. These several factors raise interesting questions as to the mechanism of bimolecular reactions and the energy exchanges between molecules on collision with one another (Christiansen, *Z. physik. Chem.*, Vol. *113*, p. 35; Born and Franck, *Z. Physik*, Vol. *31*, *p.* 411), a problem allied with the sensitisation of photochemical reactions and the extinction of fluorescence, e.g., of mercury, by admixture with foreign gases (Stuart, *Z. Physik.*, Vol. *32*, p. 262).

Water Vapor as Catalyst.—Baker and Carlton (*Jour. Chem. Soc.*, Vol. *127*, p. 1990), have studied once more the combination of hydrogen and oxygen under the influence of ultraviolet light and have shown that when thoroughly dried by standing for 13 weeks in contact with phosphorus pentoxide in quartz vessels, they do not combine under the influence of the light of the mercury vapor arc.

Theories of Solution.—The Debye-Hückel theory of electrolytic solutions continues to dominate the field of research in solutions. In their early papers Debye and Hückel (*Z. Physik.*, Vol. *24*, pp. 185 and 334), employing the assumption of complete dissociation of strong electrolytes, were able to show that the activity coefficients of electrolytes in dilute solution could be represented in terms of an internal electrical energy caused by interionic attractions between an ion of a given sign and an excess of ions of opposite sign, obeying Coulomb's Law, over those of the given sign, surrounding it. In the earliest work the ions were considered as point charges and the equations derived for the osmotic coefficient, activity and the like were only applicable in the extremest dilution. Corrections were next introduced for ion diameters and a corresponding gain in the range of applicability was demonstrated. For concentrated solutions of strong electrolytes a further modification of the simple theory is required, according to Hückel (*Z. Physik.*, Vol. *26*, p. 93), which may be regarded as taking care of the "salting-out effect" which ions exercise on neighboring ions in the way that ions act on neutral substances. This "salting-out effect" of ions on ions is superposed on the primary electrical attractions. With neutral molecules, no such electrical attractions exist and the effect is a linear function of the concentration. The combined effect of electrical attraction and "salting-out" of ions on ions is to yield a curve in which the activity first decreases with increasing concentration following the law for dilute solutions, then increases to values considerably greater than the activity in infinite dilution. The theoretical equation to interpret this behavior contains in addition to the ionic attraction terms already discussed, a "salting-out" term which involves primarily the change in dielectric constant and the reciprocal of the ionic size. This equation is applicable to univalent electrolytes over the whole range of concentration. A resumé of this work with full discussion and equations is given in a recent text (Eucken, Jette and La Mer, *Fundamentals of Physical Chemistry*, N. Y., McGraw-Hill, pp. 323-348). Scatchard has shown (*Jour. Am. Chem. Soc.*, Vol. *47*, p. 651), that available data both in aqueous and non-aqueous solutions confirm the Debye-Hückel theory as completely as the accuracy of the data permits. The theory has stimulated a great deal of new investigation on the subject of dielectric constants of solutions, e.g., by Walden.

Dissociation of Water in Salt Solutions.—Harned (*Z. physik. Chem.*, Vol. *117*, p. 1), has applied his studies of amalgam cells to the calculation of the dissociation of water in solutions of sodium and potassium chlorides. He finds that the dissociation increases rapidly at first, in agreement with the earlier Arrhenius view, passes through a maximum and then diminishes. The maximum occurs around 0.5 molar salt concentration and the dissociation is some 38 per cent. greater than in pure water. Schreiner (*Z. unorg. Chem.*, Vol. *135*, p. 333) reaches similar conclusions, his maximum increase in the dissociation amounting to 60 per cent. at the same concentration, viz., 0.5 mm. In a 2.1 molar solution the water would have the same dissociation constant as in pure water. In this paper, Harned also discusses his results from the standpoint of the Debye-Hückel theory.

Methanol Synthesis.—The outstanding development in applied physical chemistry is the synthesis of methanol from hydrogen and carbon monoxide

$$2H_2 + CO = CH_3OH$$

by a high pressure reaction of the ammonia synthesis type. Calculation shows that the equilibrium is in this case more favorable than with ammonia, operating pressures of upwards of 50 atmospheres giving practicable yields. As catalysts various oxides such as zinc, chromium and manganese oxides are suggested in patents to the Bädische Company and in literature recording developments in France.

BIOLOGICAL AND FOOD CHEMISTRY

By Arthur W. Thomas
Professor at Columbia University

VITAMINS

Five Vitamins.—Attention has been focussed principally upon what was formerly termed the fat-soluble vitamin (Vitamin A), now recognized to consist of at least two vitamins (Vitamins A and D). In general five vitamins are now recognized as essentials to proper animal nutrition, well-being and growth, as follows:

Vitamin A.—The anti-zerophthalmic vitamin, essential for health and growth.

Vitamin B.—The anti-neuritic vitamin, essential for health and growth, and an appetite stimulant.

Vitamin C.—The anti-scorbutic vitamin without which human and certain other animals develop scurvy.

Vitamin D.—The anti-rachitic vitamin, essential to bone growth. The effects of this vitamin are obtained also from ultra-violet rays. (See Irradiation, below).

Vitamin E.—The anti-sterility vitamin. The importance of this vitamin for reproduction has attracted much attention. It should be noted, however, that it is no more important in this sense than Vitamins A and B, but is characterized by the fact that whilst A and B possess other qualities, E is solely an anti-sterility factor.

Vitamin A.—Anti-zerophthalmic.—The bodily storage of Vitamin A as influenced by age has been shown by Sherman and Storms (*Jour. Amer. Chem. Soc. 47*, 1653). Among animals coming from the same previous diet, age was found to have an important influence upon the length of the survival period upon food devoid of vitamin A. The maximum body store of vitamin A was found at six months of age, or about at the beginning of full adult life.

Significant data concerning the relation of vitamin A to growth, reproduction and longevity are to be found in the paper by H. C. Sherman and F. L. MacLeod (*Jour. Amer. Chem. Soc. 47*, 1658). A proportion of vitamin A in the food sufficient to support normal growth and maintain every appearance of good health, for a long time at least, may still be insufficient to meet the added nutritive demands of successful reproduction and lactation. Along with the failure to reproduce successfully there usually also appeared in early adult life an increased susceptibility to infection and particularly a tendency to break down with lung disease at an age corresponding to that at which pulmonary tuberculosis so often develops in young men and women. The bacillus involved is different; but the close parallelism of increased susceptibility of the lung to infection at this stage of the life history appears very significant, especially in view of the fact that the vitamin-A content of lung tissue varies with that of the food. Thus it is clearly shown that vitamin A is an even more important factor in the chemistry of food and nutrition than has previously been appreciated, for it must be supplied in liberal proportion not only during growth but in the food of the adult as well, if a high degree of health and vigor are to be maintained.

Vitamin B.—Anti-Neuritic.—Study of the effect of vitamin B deficiency on reproduction by Parkes and Drummond (*Proc. Roy. Soc. London 98B*, 147) reveals that the reproductive power of the buck rat degenerates in a short time when the animal is placed on a ration totally deficient in vitamin B.

Vitamin C. — Anti-scorbutic. — Investigations by Delf (*Biochem. Jour., 19*, p. 141) afford information concerning stability of vitamin C. When whole fruits (oranges or lemons) and tuberous roots are stored their vitamin C value is retained as long as the tissue itself remains living. Expressed juices of oranges and lemons which have been stored for five years in the frozen condition retain about half their original vitamin C value.

Vitamin E.—Anti-Sterility.—The significance, properties and occurrence of vitamin E as shown by Evans were reported to the National Academy of Sciences in April (H. M. Evans and G. O. Burr: *Proc. Nat. Acad. Sci. 11*, 334).

If normal rats are shifted to a ration deficient in vitamin E, they preserve their normal fertility for three or four months, when they lose it. Similarly, when sterile animals are cured with foods possessing the new vitamin, not only is the next gestation normal, but in some circumstances, the next two or three gestations.

The administration to sterile animals of foods or extracts of foods known to be twice to twenty times as rich in vitamin E as is required for the birth of living young does not increase litter size or weight, or in other ways improve the performance of the reproductive mechanism beyond normal limits. This is in consonance with what we know of the action of other vitamins, there being little or no reliable evidence of advantage from an abnormally high quota of them, yet absolute need of the minimal quota.

Vitamin E may be called fat soluble, though its range of solubility is far greater than that of ordinary fats. It is almost insoluble in water, yet its presence in watery solutions has been repeatedly encountered.

Vitamin E is remarkably stable to heat, light, air and many of the ordinary chemical reactions. It is so widely distributed in both vegetable and animal tissues that there is little likelihood of one's food being deficient in it.

Vitamin A.—Conditions for a more exact estimation of Vitamin A using the white rat as experimental animal have been described by Sherman and Munsell (*Jour. Amer. Chem. Soc. 47*, 1639).

A delicate color test for Vitamin A consisting of a momentary blue color upon treatment of an oil with arsenic chloride has been found by Rosenheim and Drummond (Biochemical Jour. *19*, 753).

Biosterin.—A contribution of exceptional merit is the preparation of an extremely potent vitamin A concentrate by the late Takahashi. (Takahashi, Nakamiya, Kawakami and Kitasato: *Scientific Papers* of the *Institute of Physical and Chemical Research* (*Tokyo*), Vol. *3*, No. 32, p. 81). This preparation which Takahashi believed to be a chemical substance is called Biosterin. Starting a normal animal on a vitamin-A-free diet, it was found that 0.000005 gm. of Biosterin daily effected a comparatively satisfactory maintenance of growth with no deficiency symptoms. The Biosterin from cod-liver oil is believed to be $C_{27}H_{44}O_2$. It is a reddish-yellow, viscous oily substance distilling under a pressure of 0.02-0.03 millimeters at 147° C.

Vitamin B.—Concentration of extracts containing vitamin B by Levene and van der Hoeven (*Jour. Biol. Chem. 65*, 483) led to a product containing 15 per cent. nitrogen and potent in daily doses of 0.1 mg.

Irradiation.—The discovery of the antirachitic powers of ultra-violet light has been developed further this year. Irradiation of hens for 10 minutes daily with ultra-violet light greatly increased amount of eggs laid and the hatchability of the same. The amount of lime in the shell was markedly increased as was also the antirachitic potency of the egg yolks. (Hart and Steenbock: *Jour. Biol. Chem. 65*, 579).

Leg weakness in chicks can be cured by short exposure to sunlight. (Bethke, Kennard and Kik: *Jour. Biol. Chem. 63*, 377).

Henderson (*Biochemical Jour. 19*, 52) caused a definite increase in the lime and phosphorus retention of a pig on a diet poorly balanced with respect to these inorganic constituents by subjecting the animal to carbon arc lamp irradiation one hour daily for twenty-four days.

The activation of oils by the shorter light waves (quartz mercury arc, open carbon arc, iron arc and sunlight) has shown that the antirachitic potency so produced resides in the unsaponifiable constituents of the oils. (Steenbock and Black: *Jour. Biol. Chem. 64*, 263). Fresh olive oil became very potent upon moderate exposure to ultra-violet rays, but became inactivated upon excessive exposure to them. An activated olive oil kept in the dark for ten months retained its activity. Cholesterol acted differently from oils in that prolonged irradiation did not destroy the antirachitic power conferred upon it by short exposures.

Phytosterol from cottonseed oil and cholesterol from brain tissue irradiated for thirty minutes in a one per cent. suspension in water protected against rickets when fed to rats on a low phosphorus diet. (Hess, Weinstock and Helman: *Jour. Biol. Chem. 63*, 305). In regard to the bearing of their results on the pathogenesis of rickets, they propose the following tentative hypothesis:

"It would seem quite possible that the cholesterol in the skin is normally activated by ultra-violet radiation and rendered antirachitic—that the solar rays and similar artificial radiations are able to bring about this conversion. This point of view regards the superficial skin as an organ which reacts to particular light waves (the epidermal organ) rather than as a mere protective covering. This suggested mechanism presupposes not only the formation of active cholesterol within the skin but its further transport by way of the circulation."

A continuation of this investigation (Hess and Weinstock: *Jour. Biol. Chem. 64*, 181) demonstrated that dry milk powder, flour and spinach can be rendered antirachitic by radiations from the quartz mercury vapor lamp. This potency was maintained by the spinach after it had been boiled one-half hour. Irradiated cholesterol prevents rickets when given by the subcutaneous route. The radiations which render cholesterol active are similar in their wave lengths (200-300 millimicrons) to those which have been found to protect animals against rickets when they are directly exposed to the rays. Irradiated cholesterol is effective in preventing the rickets brought about by a diet either low in phosphorus or low in lime.

One must be warned that vitamin D or the antirachitic potency conferred by short light rays is not solely a rickets cure or preventative. This principle effects greater lime and phosphorus retention and thus its antirachitic function is accounted for. That lime is a limiting factor has been strikingly shown by the researches of Sherman and MacLeod (*Jour. Biol. Chem. 64*, 429).

NUTRITION

General.—Most thorough studies of the physico-chemical property of solubility product of calcium phosphate afford more exact information concerning the significance of lime and phosphorus in nutrition and a new and more exact method of treating rickets. (Holt, LaMer and Chown: *Jour. Biol. Chem. 64*, 509).

Diet excessively rich in fat has been found to increase the blood uric acid. This is partly due to a decreased blood volume with a consequent decreased elimination. (Harding, Allin, Eagles and Van Wyck: *Jour. Biol. Chem. 63*, 37).

Protein.—The effects of excessively rich protein diets have been shown by Reader and Drummond (*Jour. Physiol. 59*, 472). On food mixtures containing 90 per cent. protein, rats failed to show normal growth at any stage and attained a constant weight of approximately 33 per cent. of the normal. No abnormalities of body structure were noted except hypertrophy of the kidneys.

The high nutritive efficiency of milk proteins in growth and that cystine is the first limiting amino acid of proteins of cow milk have been demonstrated. (Sherman and Merrill: *Jour. Biol. Chem. 63*, 331).

Blood Regeneration.—Beef liver has been found to be most excellent for blood regeneration in severe anemia (Whipple and Robscheit-

Robbins: *Amer. Jour. Physiol.* 72, 408).

While the feeding of inorganic iron will not correct a nutritional anemia, inorganic iron in conjunction with such iron-free alcoholic extracts as that of cabbage or of yellow corn-meal is effective. (Hart, Steenbock, Elvehjem and Waddell: *Jour. Biol. Chem.* *65*, 67) .

Protein Chemistry.—A new product of hydrolysis of certain proteins believed to be a hydroxylysine has been isolated (Schryver, Buston and Mukherjee: *Proc. Roy. Soc. London*, *98B*, 58).

Molecular Weights.—Studies of the physical chemistry of the proteins (Cohn, Hendry and Prentiss: *Jour. Biol. Chem.* *63*, 721) point to the following minimal molecular weights of certain proteins:

Gelatin	10,300
Zein	19,400
Gliadin	20,700
Hemocyanin (Limulus)	22,700
Bence-Jones protein	24,500
Edestin	29,000
Hemocyanin (Octupus)	33,500
Egg albumin	33,800
Glutenin	36,300
Fibrin	42,000
Serum albumin	45,000
Hemoglobin	50,000
Serum globulin	81,000
Casein	192,000

Enzymes.—Considerable interest has been aroused by the application of adsorption methods to the problem of isolation and purification of enzymes as proposed by Willstätter (Zeitschrift physiologische Chemie). Willstätter's claims are striking but confirmation is up to the present time lacking.

Boorsook and Wasteneys (*Jour. Biol. Chem.*, *63*, 563) have demonstrated the reversibility of the action of pepsin and trypsin action, *i.e.*, they have revealed conditions under which these enzymes synthesize protein matter from solutions of protein hydrolysis products.

It has been shown that pepsin acts like a univalent ion. (Northrup: *Jour. General Physiol.* 7, 603). Its adsorption by protein particles is irreversible and markedly influenced by the presence of low concentrations of electrolytes.

Further evidence has been produced in favor of the point of view that pancreatic amylase is protein in character. (Sherman, Caldwell and Naylor: *Jour. Amer. Chem. Soc.* *47*, 1702). The investigations by Scott (*Jour. Biol. Chem.* *65*, 601) point strongly to the protein nature of insulin.

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By E. H. Kennard

Assistant Professor of Physics at Cornell University

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SANITARY CHEMISTRY

By F. W. Mohlman

Chief Chemist, Sanitary District of Chicago

Better Standards.—The quality of public water supplies has been under close scrutiny in the year 1925. More stringent standards are being demanded by our larger municipalities and by our governmental agencies which are charged with the duty of controlling the quality of potable waters.

The United States Public Health Service has adopted a standard of quality that is, numerically, twice as stringent as the old standard. The new standard will not pass a supply which contains more than one bact. coli per 100 cubic centimeters; the old standard was two per 100 c.c. As the United States Public Health Service can forbid the use of rejected supplies on interstate carriers, the standard is applied indirectly to all of the more important municipal supplies, most of which are able to meet the new standard. Some filtered surface waters from contaminated supplies are not able to meet the standard unless the filtered water is chlorinated.

Chlorination has thus been a great aid in the improvement and safeguarding of water supplies. There is some feeling at the present time, however, that too much dependence is being placed on sterilization. Studies are being made to determine the limits of bacterial loading of filter plants and the factor of safety that can legitimately be left for sterilization.

Chlorine Tests.—Tests for residual chlorine have been improved and the control of chlorine dosage in our larger cities has been placed under more scientific control in the past year.

Notwithstanding the improvement in control, tastes and odors have been of more frequent occurrence and constitute a very serious problem in water purification. These tastes and odors may be due to various causes, such as the presence of microörganisms in unusual concentrations, or too great an excess of residual chlorine, but the most common source of obnoxious tastes and odors has been the presence of phenol-containing wastes in chlorinated waters. These wastes are discharged from by-products of coke plants, wood-distillation plants, and oil refineries. The obnoxious tastes are due to chlorphenols. They have been reported in as low concentration as 1 part (phenol) in 500,000,000, but most investigators agree that higher concentrations are necessary to become obnoxious.

Investigations of the nature and source of these wastes have been made at Milwaukee, Toledo, Cleveland, Chicago, Morgantown, W. Va.; McKeesport and Newcastle, Penn. The only satisfactory remedy seems to be complete removal of the phenol-containing wastes from water-courses and lakes. The wastes are used in some plants for quenching coke, and investigations have indicated that they can be treated biologically on trickling filters at very low rates, but very few coke plants are now recovering or treating their wastes.

Water Purification.—Studies have been made at various water-purification plants of the factors that control the formation of alum floc in the filtration of surface waters. The alum performs two functions, the removal of turbidity and the decolorization of surface waters. The zone of coagulation seems to extend over a rather wide range of hydrogen-ion concentration, with the optimum at a pH. of 5.5 units. Between 5.5 and 7.5 the precipitation and removal of aluminium-ion from solution is complete, with maximum removal of turbidity. For maximum removal of color the pH should be 5.5 or less. At several plants sulphuric acid has been used to lower the pH, with a reduction in the amount of alum required for coagulation. The effluents from alum-treated water are practically free from all the aluminium added as alum when the pH value of the treated water lies in the zone, between 5.5 and 7.5 units. Above and below these limits there is a possibility of soluble (colloidal) alum passing through a sand filter.

Water-Softening.—This has shown slight progress in 1925. Lime and soda ash are generally used for softening municipal supplies, while there has been a marked increase in the use of zeolites for softening laundry and institutional supplies. An interesting study has been made at the University of Chicago of the relative effect of distilled and hard water on the growth and bone structure of chicks, white rats, rabbits, dogs and calves. In almost all cases the test animals drinking hard water were heavier and had larger, stronger bones than those drinking distilled water.

Sewage Treatment.—Brief mention should be made of the great advance in the application of the activated sludge process in America, as evidenced by the new plants put in operation in 1925 at Indianapolis and Milwaukee (see Section on Sanitary Engineering). Interesting studies have been made at Milwaukee, Chicago and Pasadena concerning the pretreatment of activated sludge as an aid to filtration. The most satisfactory coagulants have proven to be filter alum (aluminium sulphate), sulphuric acid, and ferric salts. The filtrability of the sludge varies over wide limits, depending upon the degree of biological treatment and amount of air applied to the sewage. At times it would be economically impossible to filter the sludge without the use of the above-mentioned filter aids.

Detailed investigations have been made at the New Jersey Sewage Experiment Station, located at New Brunswick, N. J., on the biological, bacteriological and chemical phase of sewage treatment. Studies have been made of the operation of Imhoff tanks, trickling filters and separate sludge digestion tanks. Results indicate that the foaming of Imhoff tanks may be predicted by determinations of the per cent. of carbon dioxide in the evolved gases. The nitrification in trickling filters has been shown to occur in the lower part of the bed, within a foot or two of the effluent drains.

The work at the Lawrence (Mass.) Experiment Station and at the Illinois State Water Survey has been continued. Some work has been done at the Ames (Iowa) Experiment Station on the treatment of creamery wastes. The treatment of corn products' wastes has been investigated in great detail by the Sanitary District of Chicago.

River and Coast Pollution.—Reports have been issued in 1925 by the U. S. Public Health Service, giving the results of their investigations of the pollution of the Ohio River. A similar report has been issued by the Engineering Board of Review of the Sanitary District of Chicago concerning the pollution and self-purification of the Illinois River. These reports mark a noteworthy advance in the study of stream purification in America. The conception of the fundamental importance of a balance of the oxygen requirements and oxygen resources has been emphasized in both reports.

Oil pollution of coastal waters has been studied by the Bureau of Mines, in coöperation with the American Petroleum Institute.

A widespread epidemic of typhoid fever was proven to be due to contaminated oysters taken from sewage-polluted beds. An embargo was temporarily placed on oysters by various states, as a result of which the sanitary conditions surrounding the gathering and shipment of oysters were greatly improved. It is possible to purify oysters by storage in a bath of chlorinated water but this procedure has not been adopted for various reasons. Sanitarians are beginning to question the desirability of partial sterilization or pasteurization of foods and water, without consideration of the initial bacterial count. For example, there is a parallelism between the studies that have been made in 1925 on prepasteurization bacterial counts of milk, limits of bacterial loadings of water filtration plants, and the condition of raw oysters as affecting their desirability as a food.

Ventilation.—The control of humidity and dust content of air has made progress in 1925. The evidence is somewhat conflicting concerning the necessity for mechanical humidification, but most investigators agree that hot, dry air is less pleasant than air humidified to a moderate degree, and that the control of humidity is the most important single factor in air conditioning. It has been shown that the carbon dioxide content of air is of slight importance and that discomfort is rarely caused by high concentrations of this gas. The effect of unpleasant odors on health has been investigated, but aside from some influence toward loss of appetite no direct detrimental effect has been demonstrated.

Methods for detecting carbon monoxide in mine air have been improved so that it is now possible to make a quantitative determination in a few minutes. The removal of inorganic dust is an important factor in industrial hygiene.

The chlorine treatment for respiratory infections has been studied at length. While there has been some evidence from clinical records that the method has value, controlled laboratory tests have indicated that the germicidal action of the chlorine is neutralized by its combination with the mucous membranes of the upper air passages, and that concentrations necessary for sterilization are far too toxic.

AGRICULTURAL CHEMISTRY

By C. A. Browne

Bureau of Chemistry, U. S. Department of Agriculture

Agricultural chemistry in its present generally accepted meaning treats of the composition of soils, crops and animals and of the mutual chemical relations of these in so far as they concern the production of the means of human subsistence and comfort. It is a comprehensive term which includes not only much of chemistry but touches also upon mineralogy, physics, meteorology, plant and animal physiology, mycology and other correlated sciences. There is no field of applied chemistry which is broader in its scope or more comprehensive in the circle of its numerous bearings than that pertaining to agriculture.

Fertilizers. — Modern agricultural chemistry may be said to date from the researches of Liebig who, just a century ago in the famous laboratory which he established at Giessen, began a series of epoch-making discoveries that changed the entire future of scientific husbandry. By new methods of analysis which he devised Liebig determined for the first time the chemical composition of many plant and animal substances. He was the earliest to discern clearly the basic requirements of crops for nitrogen, phosphorus, potassium, calcium and other mineral constituents. The importance of bones as a fertilizing material had been known for centuries but it was only after Liebig in 1840 proposed the treatment of insoluble phosphates with sulphuric acid, in order to make them more readily available to crops, that the great modern industry of commercial fertilizers began.

The supplying of crops with the necessary amounts of raw materials, from which they can synthesize the maximum quantity of starch, cellulose, sugar, fat, protein, alkaloid, essential oil, dye stuff, or other desired ingredient, has been, and will always remain, the great basic problem of agricultural chemistry. The determination of the nature and quantity of this supply for each individual crop is the purpose of fertilizer plot experimentation, a method of research which in its present form was originated by Lawes and Gilbert at Rothamstead in 1843 and is now pursued in every agricultural experiment station of the world. The method is to test the particular crop with applications of varying known amounts of ammonium salts, nitrates, phosphates, potassium salts, lime, etc., singly and in combination until the best mixture is found for securing a maximum yield on a given soil under a given method of cultivation. The possible combinations of mixtures and the possible effects of rainfall, temperature, cultivation, rotation, drainage, etc., introduce so many variables into plot experimentation that the interpretation of the results is rendered extremely difficult.

Minimum and Diminishing Returns.—Two much discussed laws in fertilizer experimentation are the "law of the minimum," first announced by Liebig, and the "law of diminishing returns." The "law of the minimum" teaches that the yield of a crop is limited by the amount of the minimum essential constituent which is present in the soil whether it be nitrogen, potash, phosphoric acid, lime, water or other ingredient. If nitrogen, for example, is the deficient constituent, then no increase of phosphoric acid, potash, or other fertilizing substance will materially benefit the crop. The "law of diminishing returns" teaches that, after a certain maximum, additional increases of fertilizer, although perhaps at first financially remunerative, give proportionately smaller increases of crop until finally a point is reached beyond which further additions cause no increase of yield.

The "law of diminishing returns" has given rise to a vast amount of discussion among agricultural economists, for it is the principal determining factor as to the profitable limit to which crops can be fertilized for increased production. Obviously the profitable limit will vary according to the relations between the costs for labor, seed, fertilizer, transportation, etc., and the selling price of the farm commodity. The "law of the minimum" and "the law of diminishing returns" are of broad fundamental importance since they apply not only to crop fertilization but to cattle feeding and many other operations of agriculture.

The possible future shortage of food supplies, with the increase of the world's population, with the gradual decrease of soil fertility and with the constant depletion of available fertilizing materials, has given rise to frequent prophecies of disaster. Everyone will recall the warning of Sir William Crookes in his presidential address before the British Association in 1898 with respect to the rapid exhaustion of the world's supplies of combined nitrogen for agricultural uses. While this particular danger has been largely averted by the recent discovery of commercial methods of fixing atmospheric nitrogen, there is cause for future apprehension in the case of potash and phosphoric acid, which have no such unlimited storehouse of reserves.

Problem of Exhaustion.—The problem of the exhaustion of the world's natural phosphorus and potassium resources must sooner or later be faced. The losses of these important elements to American agriculture in the exportation of grain, in the sewage of cities, and in other wastes cannot continue indefinitely. The restoration of our soils to their maximum fertility will become increasingly important as the density of our population grows. American agriculture with its cheap land and high cost of labor has been obliged to reckon production upon the basis of bushels of grain per man rather than upon the European basis of bushels of grain per acre. The United States in the future must turn more and more to intensive methods of cultivation and the adaptation of American farming to this system will be one of the chief problems to engage the attention of our agricultural chemists.

Minute Influences.—The formation of carbohydrates, fats and proteins from their elementary components may be termed the chief functions of our agricultural crops. But in the performance of these major activities various complicated side-reactions take place. Although the substances formed in these secondary processes may be insignificant in amount they can be of great importance both to the advantage and to the disadvantage of the plant. The essential oils of the cotton blossom, for example, exist only in minute quantities yet they are supposed to perform a most useful function in attracting the bees and other insects that effect pollenization. Odorous volatile substances emanating from other portions of the plant may, however, act injuriously in attracting the boll-weevils which do serious damage to the crop. This attracting action of a chemical substance for insects (chemotropism), is so powerful that a single cotton plant growing alone will give off emanations, unweighable in amount, but sufficient to attract weevils from a long distance. Power and Chestnut of the Bureau of Chemistry have isolated no less than fifteen volatile odorous substances that are given off by the cotton plant, one of which (trimethyl amine) has been found to act as a powerful attractant for the weevil. The employment of such attractants as baits, for living weevils and other insects of destruction, is now being investigated by the United States Department of Agriculture.

Soil Study.—The field is so vast that it is possible to indicate only very briefly a few of the agricultural chemical problems that await solution. The agricultural chemist is not concerned, as in the early days, with the mere chemical analysis of soils and crops and animals, but rather with the dynamic rôle which is played by the constituents in the soil solution and in the fluids of the living organism. He does not consider the question of fertilizing for the increased production of grain or seed alone, but also for the increased yield of oil or carbohydrate or protein. The old problems of the formation, chemical composition and significance of the humus ingredients of the soil are being restudied. The influence of the acidity and alkalinity of soils upon crop production is being reinvestigated by the aid of more refined methods of analysis. New chemicals are being examined as insecticides and fungicides for protecting crops against the countless enemies which threaten above and below the ground.

Food Values.—The importance of the different vitamins in the diet of men and animals is at present one of the leading subjects of agricultural chemical investigation, but the chemical nature of these highly necessary food constituents is almost wholly unknown. The different vegetable proteins vary in their content of the amino acids essential to proper nutrition and more extensive researches are being conducted to determine the best sources of these dietary requirements. Much new light has been thrown by recent researches, in the United States and elsewhere, upon the economic feeding of farm animals but there are many problems that still remain to be solved regarding the most profitable methods for producing meat and milk. Great attention is also being given by chemists to the improvement of means for preventing the deterioration and decay of agricultural products and to the discovery of better processes for utilizing surplus crops and agricultural wastes.

Research Institutions.—The Federal Department of Agriculture and the State Agricultural Experiment Stations are the leading institutions in the United States for promoting agricultural chemical research. In addition to these organizations there are universities and private establishments that are conducting investigations in agricultural chemistry. The late Mrs. Herman Frasch left a generous bequest for supporting original research in this field and this is only one of many indications of the growing realization, in the mind of the general public, of the great importance of this branch of agricultural science.

ELECTROCHEMISTRY

By Colin G. Fink
Professor at Columbia University

Results.—The year 1925 has been a noteworthy one in the history of the American Electrochemical industry. Prominent among the achievements is the production of a new aluminum of the highest grade of purity; the establishment of an iron tube factory at Niagara Falls for the direct manufacture of tubes by electrolytic means; the successful completion of years of research, resulting in a new metal, thorium, extremely malleable and ductile, readily rolled into sheets and drawn into wire; the large scale commercialization of chromium plating; marked improvements in the electrodeposition of nickel; the ever-increasing use of the electric furnace of the induction type; and a new electrolytic rectifier using tantalum electrodes.

Electric Furnaces.—There are now over 500 electric steel furnaces in operation in the United States, as compared with 19 furnaces in 1913. The American electric steel industry is the foremost of the world. Aside from the many new arc furnaces installed, an interesting factor was the installation of a number of 800 kw. ring type horizontal induction furnaces, of six-ton capacity.

In the non-ferrous industry the rapid expanse in the number of electric furnaces has been phenomenal. The induction furnace which had met serious objections in the steel foundry has proved an unqualified success for the production of brass and other non-ferrous alloys. Fuel-fired melting furnaces are rapidly passing out of existence, being supplanted by the more efficient electric furnaces, such as the Ajax-Wyatt, of the induction type, and the Detroit Electric Furnace of the indirect arc type. For the production of metals and alloys requiring special precautions, the Northrup high frequency furnace is meeting with increased favor. An improvement in the large installation is the replacement of the oscillatory spark gap by the new high frequency generators.

Of the various electric furnace products, next to those of steel and brass, the ferro alloys command a domineering position. Important among these are ferro-silicon, ferrochromium, ferro-tungsten, and ferrovanadium.

Fused Electrolytes.—In the fused electrolyte field the outstanding accomplishment has been the production of a new aluminum. This metal analyzes 99.8 per cent. aluminum, as compared to 99 per cent. of the ordinary aluminum. This result of years of research is reported upon by Messrs. Francis C. Frary and J. D. Edwards, the new cell having been originally designed by Wm. Hoopes. In the new cell, the anode consists of a molten aluminum alloy, containing small percentages of copper, besides a number of other impurities. The electrolyte is a fused mass containing barium fluoride, sodium fluoride, and aluminum fluoride, besides small quantities of calcium and magnesium fluorides. Bauxite is introduced into the bath and is soluble to the extent of about 2 or 3 per cent. The cell operates at about 6 volts and 20,000 amp. The new aluminum holds its bright luster in the air almost indefinitely and is only slowly soluble in dilute hydrochloric acid, whereas ordinary aluminum is readily attacked by this acid. The physical characteristics of the new metal are quite distinct from those of ordinary aluminum.

Wm. G. Harvey, of the American Magnesium Corp., presented for the first time the details of the new process for making pure magnesium. This new process uses a fused fluoride bath in contradistinction to the older chloride bath. The magnesium made by this new process analyzes 99.9 per cent. purity and is very stable in the air, so that fine ribbon and wire will not disintegrate readily, as has been the case with the imported material in the past. The importance of magnesium in the metallurgical art is largely due to its lightness. It finds wide application in the construction of aeroplane parts.

A newcomer in the fused electrolyte field is beryllium, now being made commercially by the Beryllium Corp. of America. Beryllium added to magnesium results in alloys of valuable mechanical properties.

Among the academic researches in the fused electrolyte field, those of Prof. H. C. Kremers, of the University of Illinois, and those of Dr. H. H. Kahlenberg, of the University of Wisconsin, deserve special mention.

Aqueous Electrolytes.—The Niagara Electrolytic Iron Company started production of pure iron tubes by the electrodeposition of iron on a steel mandrel. The process is a modification of the Boucher-Bouchayer process, which has been in commercial operation at Grenoblé, France, for a number of years. From 7 to 10 tons of iron tubes are produced per day. After annealing, these tubes are extremely malleable.

Heavy deposits of nickel, 20 and 30 mil thick, free from pits and other flaws, are now being made by the Madsen and the Hybinette processes. The success is due largely to the efficient elimination of the hydrogen by means of strong oxidizing agents serving as cathode depolarizers. The Bureau of Standards and other laboratories made a thorough investigation of the protective value of nickel and other metals. The Bureau has suggested a number of improvements in the bath and its manipulation.

In the plating field, the protection of steel by electrodeposits has been the main consideration. C. J. Wernlund developed an improved method of electrogalvanizing, using a small amount of mercury in the zinc cyanide bath. Similarly, Dr. Wernlund has developed a new cadmium plating bath, using a small amount of mercury in the bath. Besides the Roessler and Hasslacher Company, the Udylite and Grasselli Companies have each developed a commercial process for the electrodeposition of cadmium on steel and other metals.

The year witnessed the extended commercialization of chromium plating and there are several large plants in operation at present, turning out a big variety of chromium plated products. Chromium plate is extremely hard—a steel file will not touch it. It is permanently resistant to corrosion and also resistant to oxidation at high temperatures. It can be produced either in a bright mirror finish, requiring no polishing, or a dull satin finish. Its color approaches that of platinum.

H. D. Hineline and W. B. Cooley carried out to successful completion the simultaneous deposition of copper and nickel on steel and other metals, thus producing a coating of an alloy similar to that of Monel, highly resistant to atmospheric and other corrosion.

Mr. R. G. Bowman, of the Anaconda Lead Products Company published the details of the new Sperry process for the electrolytic production of white lead superior in quality to that produced by the older process.

S. J. Lloyd and A. M. Kennedy announced a new method for the electrolytic production of calcium arsenate. A sodium hydrate solution is electrolyzed between iron electrodes.

Electrolytic Cells.—The manufacture of dry cells of the Le Clanché type has reached hundreds of millions per annum, due largely to the universal demand by the radio "fans." In some of the newer dry cells, magnesium is used instead of zinc.

The storage battery industry likewise experienced a very profitable year, due not only to the rapid growth of the radio industry, but also to the continued phenomenal growth of the automotive industries. According to G. W. Vinal, one of the most notable achievements in the storage battery field has been the production of thin plate storage batteries for aeroplane service of greatly increased capacity.

A very convenient and serviceable type of Weston Standard Cell has been developed by W. C. Vosburgh and Marion Eppley. This is a portable cell of the "H" type. By mixing pure asbestos fiber with the sulfate of mercury paste, the portability of the cells has been greatly increased without materially effecting the hysteresis. The temperature co-efficient of the new cells is very low.

Organic Electrochemistry. — Although Germany has for some years been carrying out commercially the electrolytic production of organic chemicals, here in America we have been rather reluctant in adopting these methods. At present there are two plants operating successfully, producing organic compounds electrically. During the year patents were granted to Messrs. H. G. Byers, W. D. Van Arsdell, and G. A. Richter for the electrolytic manufacture of chloroform. Nascent hydrogen is brought into reaction with carbon tetrachloride dissolved in 95 per cent. alcohol. The carbon tetrachloride is reduced to chloroform.

A very interesting announcement was made by S. E. Sheppard and L. W. Eberlin, of the Eastman Kodak Co., electrodepositing rubber on various metals. A solution of rubber in an organic solvent is emulsified in an aqueous solution of soaps, or equivalent emulsifiers, the mixture being thoroughly agitated and homogenized by spraying or grinding. The bath has very good throwing power. For the electrodeposition of rubber, a current density of about ½ ampere per square decimeter is used. Rubber has been very successfully plated upon lead, cadmium, zinc, tin, antimony, and certain alloys of these metals; also upon iron and steel under certain conditions. Copper and copper alloys are usually unsuitable.

Corrosion.—The subject of corrosion of iron and steel has become of increasing economic importance and nearly every large research laboratory in the world is investigating some phase or other of this problem. Within the last year or so there has been a general adoption of the theory that all corrosion of metals, almost without exception, is electrolytic. As pointed out under electroplating, above, careful investigations have been carried out in the plating of cadmium, nickel, zinc, and chromium on iron and steel, in order to assure permanent protection of the ferrous metal. An interesting application that has come into commercial use is the electrolytic protection of boilers and other metal apparatus, worked out by Alexander Kirkaldy and his associates. The boiler shell, or metal parts of other apparatus, is maintained at a definite cathodic potential. One or more iron anodes are introduced through the boiler shell by means of a specially devised insulator. The entire corrosion centers in these anodes, which are renewed from time to time.

Another application of electrolysis has been worked out by Colin G. Fink and Chas. H. Eldridge in the restoration of ancient bronzes. The bronze object is made cathode in a weak alkaline solution and feeble currents are passed through the electrolyte.

The Fixation of Atmospheric Nitrogen has been one of the most fruitful applications of electricity to chemistry. For many years in the past the only source of supply of nitrates in large quantities has been the caliche deposits of Chile. Aside from the demand for agricultural purposes, there is a constantly increasing demand by various industries, such as dyes and explosives. The American Electrochemical Society at its September Convention (1925) devoted an entire day to the discussion of the nitrogen problem. By the synthesis of nitrogen and hydrogen, ammonia can now be produced for 2¼¢ per pound. However, ammonia cannot be applied to the soil directly and must be combined with some acid, such as phosphoric acid. At this convention, H. K. Benson described the manufacture of sodium nitrite by the arc process, as carried out by the American Nitrogen Products Company, of Seattle, Wash. Air is passed through an electric arc and the nitrogen is oxidized to nitrous oxide. This is brought in contact with water to form nitrous acid, and subsequently this acid is neutralized with sodium carbonate to form sodium nitrite.

Phosphoric acid, which is brought into reaction with ammonia to form ammonium phosphate, is being produced on a large scale in an electric furnace at Anniston, Ala. To meet the increasing cost of transportation, the phosphate fertilizers should preferably be in a concentrated form, such as ammonium phosphate, potassium phosphate, or calcium phosphate. Heretofore 80 per cent. of the compounds in phosphate fertilizers were of little or no fertilizer value.

Ozone.—During the year patents were issued to F. E. Hartman for an improved method for the production of ozone. Air under pressure is supplied to an ozone generator and gases are obtained containing a high concentration of ozone.

Photo-Electric Cell.—A study of the electrical behavior of metal vapors has resulted in a new photo-electric cell, using either sodium or potassium vapor. This cell has the outward appearance of an ordinary incandescent lamp and has been termed the "photo-electric eye." It is more sensitive than the familiar selenium cell.

Power for Electrochemical Industries.—The question of large blocks of cheap power for electrochemical industries continues to be the most fundamental of all problems. F. A. J. FitzGerald published a splendid survey of the entire power situation before the World Power Conference, held at London in 1924. During the year 1925 the Muscle Shoals Plant put into operation its first generator unit. Noteworthy developments have been going on along the Pacific Coast, in particular the development of the Pitt River and the construction of the Pitt River dams. Dam No. 4 is now nearing completion.

CHEMICAL ENGINEERING

By H. C. Parmelee

Editor of Chemical and Metallurgical Engineering

Advances. — Chemical engineering was recognized as a factor in industry to a greater extent in 1925 than in any preceding year. In educational circles chemical engineering gained increased recognition as a separate branch of engineering, while in the industrial field it was proved to have a wide application in the most diverse industries. Thus a certain group of industries became more definitely recognized as chemical engineering industries, because clearly based on the common use of the processes and principles of chemical engineering. Chief among them were the manufacture of heavy and fine chemicals, coal products, explosives, petroleum products, fertilizers, paper and pulp, sugar, insecticides, wood distillation products, paint and varnish, soap, lime and cement, ceramics, rubber, leather and food products. The adoption of chemical engineering principles resulted in great strides toward putting these industries on a scientific basis and taking them out of the realm of rule-of-thumb and empiricism.

Industrial Organic Syntheses.—The most striking developments of the year were made in the synthetic production of several basic materials of commerce formerly obtained only from natural sources and by long-established processes.

Thus nitrogen from the air was fixed in the form of ammonia in this country to the extent of 30 short tons per day, and new plants under construction during the year were expected to double this production early in 1926. Synthetic ammonia thus produced practically captured the liquid anhydrous and aqua ammonia markets and greatly demoralized prices which had been stable for many years. No synthetic ammonia found its way directly into fertilizer production, although by displacing a portion of the by-product ammonia from coke ovens it made available more of this domestic product for competition with the sodium nitrate which the fertilizer industry must import from Chile. It would be too optimistic, perhaps, to say that synthetic ammonia would soon render this country entirely independent of foreign sources for its nitrogen supply, but certainly real progress was made in that direction during 1925.

Synthetic wood alcohol, now called methanol, has been made in Germany from water gas which in turn is obtained from coal. It found its way into the American market early in 1925 and while no domestic production was made during the year, plans were initiated that will doubtless give substantial domestic production in 1926. The production of synthetic acetic acid from acetylene, which had been made in Canada since the war, was undertaken as part of a large program adopted by a combination in which several American companies participated. Developments in both of these chemicals had their effect on the American wood chemical industry which, in spite of tariff protection, has felt the competition of these newer products of synthetic organic chemistry.

Rayon, the synthetic chemical fibre made from cotton or wood pulp, had a most striking development during the year. American production in 1925 increased 40 per cent. over 1924 and 600 per cent. over 1920. The estimated 1925 production was 57,000,000 pounds, or 30 per cent. of the world's output. Authorities in the industry estimated that the 1926 production would reach 75,000,000 pounds.

Nitrocellulose lacquers for metal and wood finishing largely displaced surface finishes in the automobile industry and bade fair to extend their application. The first large-scale commercial production of this typically American development occurred early in 1924, when 45 plants produced 2,160,300 gallons. In the first six months of 1925 the production was 4,880,200 gallons, or more than double the total production of the preceding year. The number of manufacturers increased to 67. Coincident with the development in lacquers was a marked increase in the production of solvents—butanol, made from corn, anhydrous ethyl alcohol by the fermentation of molasses, and its derivative, ethyl acetate.

American Dye Industry.—Dyes became more firmly entrenched during the year, devoting a large fund to research, increasing the number of dyes and reducing prices. It is safe to say that of the apparent consumption in the United States, the domestic industry supplied 95 per cent. and imports 5 per cent. There was a large exportable surplus of certain dyes, chiefly indigo and sulphur black. The number of producers was 78.

Corrosion.—The prevention of corrosion received a vast amount of attention at the hands of organized engineering societies and individuals. In the realm of theory many conflicting ideas were harmonized and there was a general acceptance of the electrolytic theory of corrosion. On the practical side there was a general recognition of the fact that what is needed is more actual data on the effects of corrosion and the development of materials of construction to withstand its ravages.

For purposes of study six types of corrosion have been recognized: 1, corrosion of cast iron pipe buried in soil; 2, atmospheric corrosion; 3, natural water corrosion; 4, salt water corrosion; 5, acid corrosion and 6, alkali corrosion. These types are of interest to well-defined groups of industries. Thus subsurface pipe corrosion which is being tested by the Bureau of Standards is of special interest to public utilities transporting liquids and gases. Atmospheric corrosion affects outdoor structures of all kinds. Natural water corrosion is of concern to public water systems with respect to the inside of the pipe. It has been demonstrated that this can be successfully combatted. Marine architects are confronted with problems in salt-water corrosion and the petroleum industry meets the same problem in certain oil fields in which salt water occurs with the oil. Acid and alkali corrosion are of primary interest to the chemical manufacturing industry and others using those materials in their processes. As materials of construction, acid-resisting alloys are receiving most attention and give hope of solving many of the problems. Another line of investigation is the development of protective coatings that can be used on cheap base metals. Chromium plating, which was commercially developed in 1925, falls in this class of materials.

Coal Carbonization.—While there were no new striking commercial developments in this field of chemical engineering there was considerable experimentation in the processing of coal, in harmony with the world-wide interest in this subject. The use of water gas as a raw material for methanol and as a source of hydrogen for synthetic ammonia was indicative of a trend in the use of coal as a raw material for the chemical industry. The Pier process for generating water gas from caking bituminous coal was perfected during the year. The Koppers Company also developed a vertical retort for high-temperature carbonization for use in the manufacture of domestic gas in small units. With respect to low-temperature carbonization there was a general recognition of the fact that what is needed to meet conditions in the United States is a method of carbonizing at medium, rather than low temperatures in order to obtain better yields of ammonia, phenol an cresol by-products. The present development is toward carbonization a 800° C. which lies between th low and high temperature ranges o about 600° C. and 1100° C., respectively.

Fertilizers.—In the production o mixed fertilizer there was a tren toward more concentrated types wit double the usual percentage of potash, phosphoric acid and ammonia Looking toward still further concentrated fertilizers there was production on an experimental scale of phosphoric acid by the Liljenroth proces and urea by the Lidholm process The former consists in producin phosphorus in an electric furnace an treating the product with steam i the presence of a catalyst, yieldin phosphoric acid and hydrogen. Th latter can be used for ammonia synthesis while the former can be combined with ammonia to form ammonium phosphate. The Lidholm process for urea makes use of calcium cyanamid as a raw material.

Economics of Chemistry.—The trend of chemical prices throughou the year was on an even keel according to the weighted index of *Chemica & Metallurgical Engineering*, the index ranging from 112 to 116 (1913-1914 basis equals 100). There was an upward trend of production and operating efficiency per wage earner due largely to improved technology and mechanization of industry. Foreign trade expanded in comparison with 1924. During the first nine months of 1925 imports of industrial chemicals showed a gain of 25 per cent. and exports a gain of 4 per cent. for the corresponding period in 1924. Although the percentage gain of exports was low compared with imports, the value of the former was over $18,800,000 compared with $2,500,000 for imports.

PHYSICS AND THE ATOMIC STRUCTURE

By E. H. Kennard
Assistant Professor of Physics, Cornell University

Fields.—In Physics a large amount of material has been published by over three thousand investigators. At least one discovery of first-rate importance would seem to have been made: a radically new indication as to the nature of radiation is furnished by the work described below upon X-ray scattering and recoil electrons. Most of the work in physics, however, consists in collecting further data or attempting to improve physical theory at some point. This statement is especially true of work in Heat and in the older parts of Light and of Electricity and Magnetism. In Mechanics the most novel work has to do with special cases in the flow of fluids, which is a subject by no means fully understood even today. On the other hand, in connection with the electrical properties of gases, and in Spectroscopy of all kinds, from the infra-red through the ultra-violet to X-rays and γ-rays, activity is keen and fundamental advances are being made. Out of this mass of results we shall select for discussion a few items that seem to be either particularly significant or of general interest; any one desiring a closer survey of the developments of the year will find it in recent numbers of *Science Abstracts*, Section A.

High-Vacuum Technique. — In using mercury-vapor pumps it is necessary in some way to prevent the mercury vapor from diffusing back into the vessel that is being evacuated. Instead of a trap immersed in liquid air, A. L. L. Hughes and F. E. Poindexter at Washington University recommend the use of a trap at room temperature, containing a gram or so of potassium, which absorbs mercury vapor very readily. They show that in a mass of gas that has passed through such a trap the pressure of the residual mercury vapor is not over a few billionths of a mm. (*Phil. Mag.*, Vol. 50, p. 423).

Relativity.—In this field there have been three interesting experimental developments.

According to the General Theory of Relativity, near a large mass of matter like a star all atomic processes ought to proceed at a slightly lower rate than elsewhere, so that spectral lines ought to be slightly displaced toward the red. At the surface of the sun the shift is small, and the evidence is still somewhat conflicting. According to recent astrophysical speculation, however, there is a class of stars, known as dwarfs with early-type spectra, which are supposed to consist of matter in a state of enormous density and which are, therefore, of abnormally small radius. At the surface of such a star the Einstein shift should be much larger.

Eddington called attention to the companion of Sirius as a suitable star of this type. W. S. Adams (*Nat. Acad. Sci. Proc.*, Vol. 11, p. 382) finally succeeded in getting the light of this star into the slit of a spectrometer placed in the focus of the hundred-inch reflector at Mount Wilson, without admitting too much scattered light from Sirius, which was ten thousand times brighter and only 10″ of arc distant; a shift of the spectral lines toward the red of 0.21 to 0.23 angstrom was observed. The astrophysical theory suggests a specific gravity for this star of something like 30,000 to 60,000 and an Einstein shift at its surface of 0.23 to 0.32 angstrom. This result is taken to lend support both to the theory of stellar constitution and to the General Theory of Relativity.

In the second place, observations have been made by A. A. Michelson and H. G. Gale (*Nature*, Vol. 115, p. 566) which amount to an optical measurement of the earth's rotation on its axis. Their result is consistent with Relativity, but exactly the same shift is predicted by the stagnant-ether theory of H. A. Lorentz.

On the other hand, D. C. Miller, who has been repeating the Michelson-Morley experiment on Mount Wilson, reports observations taken in April that point toward an ether-drift at that time of something like 5 miles per second along a northwest-southeast line (*Nat. Acad. Sci.*, Vol. 11, p. 306). The results agree fairly well with those obtained in April, 1921, although the interferometer has been rebuilt in details and the location on Mount Wilson is different. The same apparatus at Cleveland showed a somewhat smaller drift in the same direction. Such a result, if confirmed, would completely destroy the Special Theory of Relativity.

Sound.—There is little activity in this field; but one item seems to be of sufficient interest to be noted. It is known that sounds of long wave-length (4 ft. and up, or a pitch below middle C) are not much absorbed by smoke or fog, whereas sound waves under a twentieth of an inch long are strongly absorbed even by pure air. Experiments have now shown that sound waves of intermediate wave-length are strongly absorbed by smoke (Altberg and Holtzmann, *Physik, Z.*, Vol. 26, p. 149). For instance, a foot of tobacco smoke, so dense that a light cannot be seen through it, will absorb 30% of the energy of sound waves as they pass through it when the waves are two inches long (corresponding to a pitch of four and a half octaves above middle C).

Magnetism.—The most interesting results in magnetism have to do with nickel and its alloys. It has been found that the Barkhausen effect can be observed in a nickel wire without an amplifier such as is required for iron: when the nickel is gradually magnetized, sharp sounds are heard in a telephone connected to a coil surrounding the wire, due to abrupt changes of magnetization (*Forrer, C. R.*, Vol. 180, p. 1253). Alloys with iron containing 60-85% of nickel, called permalloy, are remarkable for their initial permeability; this is increased by stretching if the per cent. of nickel is less than about 81% but is decreased if the per cent. exceeds this value. When a tension of 3560 lb. per square inch is applied to permalloy containing 75.5 per cent. of nickel, its initial permeability is raised from about 7500 to many times this, reaching the enormous maximum value of 280,000 at a field-strength of 0.025 gauss; saturation is reached for a field-strength of less than 2 gauss, but the saturation value of the induction is no greater than it is in the absence of tension. The application of this tension also cuts in two the hysteresis loss, which is already only a twentieth as great as in soft iron. (Buckley and McKeehan, *Phys. Rev.*, Vol. 26, p. 261).

Spectroscopy.—In this field a large amount of work has been done, both experimental and theoretical, and much definite progress has been made, but nothing is characterized by striking novelty. The experimental work consists largely of the observation of new spectral lines, their fine-structure, and the conditions affecting their intensity. In theory progress has been made especially in the direction of fitting more known lines into spectral series and of explaining these series and other spectroscopic facts in terms of quantum numbers. The following examples are typical of much of the work.

Interesting observations are recorded by I. S. Bowen and R. A. Millikan on the spectra of hot sparks in which "stripped" atoms occur, that is, atoms which have lost all but one of their valence electrons (*Nat. Acad. Sci.*, Vol. 11, p. 329; *Phys. Rev.* 25, p. 591, 600; 26, p. 150, 310). Stripped atoms of elements lying on the same line in the periodic table are found to emit similar spectra, except that the wave-length of the lines diminishes with increasing atomic number. Such a group is formed by sodium in its natural condition, Mg_2 or magnesium minus one electron, Al_3 or aluminum minus two, and so on through Si_4, P_5, and S_6 to Cl_7, which is chlorine minus six electrons. These atoms all consist of an inner core of ten electrons like neon and a single outer valence electron which radiates by dropping from an outer orbit to an inner one; but the nuclear charge varies from atom to atom in proportion to the atomic number. Each of these atoms emits, for one thing, a doublet, that of sodium being the well-known D-lines at 5893 A.; the corresponding doublet for Mg_2 is in the ultra-violet at 2800 A, for P_5 at 1123, and for Cl_7 at 807. Some of the same laws were found to hold for these spectra as hold for X-rays; for instance, the square root of the frequency plotted against atomic number gives a fair approximation to a straight line (Moseley's Law).

Certain lines were identified as due to atoms carrying two or three valence electrons. Several others of short wave-length, such as a line at 724 A. given out by Cl_6, were ascribed to the simultaneous jumping of two electrons.

Resonance Radiation and Fluorescence.—Another trend in present investigation is well illustrated by the interesting observations made on the resonance radiation and fluorescence of mercury vapor by R. W. Wood of Johns Hopkins (*Roy. Soc. Proc.*, Vol. 106, p. 679). When cold mercury vapor is illuminated by ultra-violet radiation of wave-length 2536 A. from a water-cooled quartz mercury lamp, the vapor emits both resonance radiation of the same wave-length and fluorescent radiation of other wave lengths, but the emission of these other lines stops if the 2536 radiation from the lamp is screened off by glass. The accepted explanation is that the 2536 radiation raises the electrons from the normal 1S orbit to the $2p_2$ orbit; radiation of other wave-lengths that are not absorbed by the unexcited vapor can then be absorbed by these excited atoms and can thereby raise electrons to still higher orbits, from which they can subsequently fall back and cause the emission of other lines. This explanation was confirmed by Wood by interposing various absorbing screens in the paths of the exciting rays and noting the effect on the fluorescence. For instance, if bromine vapor is interposed, which transmits only the 2536 line and a few others near it, then the green arc line at 5461 is not emitted; but if the mercury vapor is now illuminated also by another beam of light from a second mercury lamp placed behind a sheet of dense blue cobalt glass, then the mercury vapor emits the green line. In this case the 2536 radiation from the first arc raises the electrons to the $2p_2$ orbit and then the violet 4358 radiation from the second arc raises them from here to the 2S orbit, from which they can subsequently fall into the $2p_1$ orbit and thereby cause the emission of the green line at 5461.

Wood found also that the admixture of a little damp nitrogen with the mercury vapor increased the intensity of the green line and several other lines in the fluorescence as much as ten or twenty times. The nitrogen molecules are supposed to make "collisions of the second kind" with the excited mercury atoms which have their electrons in the $2p_2$ orbit; in doing this they remove a little of the energy of these atoms and lower the electron to the $2p_3$ orbit. From this orbit the electron can then be elevated, by absorption of the violet 4046 line coming from the second lamp, into the 2S orbit, which forms the starting point for the emission of the green line and several others. In confirmation of this explanation Wood showed that, while the mercury vapor mixed with nitrogen was fluorescing, the absorption in it for light of the 4046 wave-length was enormously greater than the absorption of the same line either in fluorescing pure mercury vapor or in the mixture of mercury and nitrogen when this was not being excited. This result shows that the nitrogen has the effect of increasing greatly the number of atoms in the $2p_3$ state, which are the only atoms that can absorb the 4046 radiation.

Near Infra-Red.—A field in which rapid experimental progress may be expected in the immediate future is that of the near infra-red. Work in this region will be greatly facilitated by the discovery in the laboratories of the Eastman Kodak Co. that the use of "neocyanine" as a sensitizer makes a photographic plate sensitive to infra-red light out to 1.1 micron, with a maximum sensitiveness at 0.83 micron.

Aurora Borealis.—J. C. McLennan and G. M. Shrum at Toronto find that the green line at 5577 A which is so prominent in the spectrum of the aurora borealis is readily obtained from helium containing a little oxygen. Many other auroral lines are already known to be emitted by a discharge through nitrogen containing helium, and there is good reason to think that the atmosphere at great heights consists largely of helium; thus the source of the auroral spectrum has, perhaps, been definitely determined, although the exciting cause of the emission is still in doubt. (*Roy. Soc. Proc.*, Vol. 108, p. 501.)

Conduction and Ionization in Gases.—Knowledge of these phenomena is slowly becoming broader and more definite. H. D. Smythe at Princeton concludes from experiments by the method of positive ray analysis that the immediate ionizing effect upon hydrogen of electrons with a speed ranging from the necessary minimum of 16 volts up to 30 volts is the removal of an electron from a hydrogen molecule, leaving the latter positively charged. At very low pressures (0.0007 mm. of Hg) no other kind of ion is formed. At higher pressures (e.g. 0.05 mm.), however, singly positively charged atoms and triatomic molecules occur abundantly, the former being produced probably by the simple break-up of the positive diatomic ions in collisions with other molecules.

Interesting observations on the glow discharge are reported by K. T. Compton, L. A. Turner and W. H. McCurdy at Princeton (*Phys. Rev.*, Vol. 24, p. 597, and 25, p. 606). They introduce the novel idea that cumulative ionization plays an important part here, atoms being first excited by an impact of one electron and then ionized by a second. In this way electrons each having energy much less than the ionizing potential can by their combined action produce ionization. If the current through the tube is strong, ions are abundant and tend to become uniformly distributed by diffusion; under these conditions the positive column is uniform throughout. If, however, the current is weak and the ions are not sufficiently numerous, then diffusion is ineffective, and the positive column tends to break up into "striations" or regions of strong ionization but weak field separated by interspaces in which the ionization is relatively weak while the field is strong. In the interspaces electrons acquire sufficient energy to excite atoms upon arriving at the next striation on their way toward the anode; these excited atoms may then be ionized by other slowly moving electrons.

This interpretation of the phenomena was tested experimentally in the case of the discharge through mercury vapor. The difference of potential between striations was shown to be about 5 volts, which is just above the lowest excitation potential of 4.9 volts, but much below the ionization potential of 10.4 volts. The striations were shown to absorb strongly certain lines in the mercury arc spectrum which are absorbed by excited atoms of mercury but not by atoms in their normal state. Admixture of hydrogen caused the occurrence of striations at higher-current densities, presumably because excited mercury atoms, colliding with hydrogen molecules, spent their energy of excitation in breaking the hydrogen molecules up into atoms and thus returned to the normal state; hydrogen atoms thus produced were detected by a reducing action of the gas in the striations on tungsten oxide. Helium, which cannot be thus acted upon by the mercury atoms, had no effect on the striations.

Very interesting observations were also made by K. T. Compton and C. Eckart at Princeton on a type of non-oscillatory low-voltage arc in argon, with a hot-filament cathode. The voltage drop between electrodes in this arc was only 3 to 6 volts, whereas the lowest "critical" or excitation potential of argon is 11.5 volts, so that the production of enough ions to maintain the arc was hard to understand. Investigation with the Langmuir probe showed, however, that the cathode drop was always very near to 11.5 volts, the current of nearly an ampere actually flowing against an opposing drop of 5-8 volts from a point near the cathode to the anode. It was found that the electron density near the cathode was 20 to 100 times greater than at the anode, and it is believed that the resulting tendency of the electrons to diffuse toward regions of lower densities was the means of maintaining the flow of current through the opposing field. (*Phys. Rev.*, Vol. 25, p. 139; cf. also F. H. Newman, *Phil. Mag.*, Vol. 49, p 1057).

X-rays.—The gap between the ordinary ultra-violet and ordinary X-rays is a field that largely remains to be explored and is being attacked. Very soft X-rays were studied by J. A. Becker at the California Institute of Technology (*Phys. Rev.*, Vol. 24, p. 478) by allowing them to eject photoelectrons or secondary cathode rays from a "radiator" and measuring the speed of these rays magnetically, as was done by Thibaud for γ-rays (See under Radioactivity, below). The energy of the primary cathode rays was varied from 150 to 1500 volts, so that the minimum wave-length of the X-rays varied from 8 to 82 A. Always a strong line was found on the plate due to photo-electrons with speed equal to the primary electrons. This leads to the double conclusion that the photo-electrons were derived largely from the free electrons in the emitting metal, and that the spectrum of the X-rays must have had a very narrow sharp peak at a frequency corresponding to the Einstein equation $h\nu = eV$. Other lines representing smaller speeds were ascribed to photo-electrons ejected from the interior of the atom; for instance, aluminum gave out photo-electrons that were believed to come from the L levels.

When the target which was the source of the X-rays in these experiments became accidentally covered with tungsten oxide, photo-electrons were emitted from the radiator with speeds corresponding to several characteristic wave-lengths for tungsten as calculated from ordinary X-ray series terms. A similar series of critical potentials for iron is reported by C. H. Thomas (*Phys. Rev.*, Vol. 25, p. 322). He allowed the X-rays from an iron target to produce photo-electric emission from platinum; as the voltage on the target was raised in small steps, the photo-electric emission increased, and whenever the voltage passed a critical potential for iron the rate of increase suddenly became greater, presumably due to the emission of a new wave-length not excited at lower voltages. The 32 critical potentials thus found ranged from 3.3 to 818 volts, the corresponding wave-lengths from 1694 to 15 A.

Soft X-rays seem also to be emitted copiously from gas that is emitting the negative glow in a discharge tube (J. J. Thomson, *Phil. Mag.*, Vol. 49, p. 761). The most penetrating part of the radiation corresponds as required by the Einstein equation to the voltage across the tube, and will penetrate readily through a celluloid window 10^{-4} cm. thick when this voltage is several thousand volts, the wave-length of the radiation being therefore several angstroms; but most of the radiation is absorbed by a few centimeters of gas at a pressure of only 0.01 mm. of mercury.

The most important results of the year in the X-ray field, or for that matter in the whole field of physics, are probably some observations on the recoil electrons that are associated with the scattering of X-rays. It has been shown by A. H. Compton (Chicago) and recently confirmed by Ross and Webster (*Nat. Acad. Sci.*, Vol. 11, pp. 56, 61, 224; *Jour. Opt. Soc.*, Vol. 11, p. 217) that part of the X-rays scattered from carbon are of slightly longer wave-length than the incident rays; this has come to be known as the "Compton effect." Such a change of wave-length is hard to understand if one supposes the X-rays to consist of extended waves; but it is completely accounted for by a theory put forward by P. Debye (*Physik. Z.*, Vol. 24, p. 161) and independently by A. H. Compton (*Phys. Rev.*, Vol. 21, p. 483) in terms of Einstein's assumption that the energy of all radiation is concentrated in quanta or minute specks moving with the speed of light like little bullets.

Debye and Compton suppose that when one of these X-ray quanta strikes an electron in a piece of carbon, either of two things may happen. In the first place, the quantum may perish; in this case all of its energy passes over to the electron, which then sets out at high speed as a photo-electron. Or, on the other hand, the quantum and the electron may rebound like two billiard-balls; the quantum then goes off in a new direction as a quantum of scattered X-rays, while the electron flies off as a "recoil electron." The rebound of the quantum may occur in any direction, according to the exact way in which it strikes the electron; but for every direction of rebound of the quantum there is a definite direction and speed for the recoil electron and these can be calculated by applying the usual laws of conservation of momentum and of energy.

The energy of the scattered quantum will clearly be less than that of the incident one because of the energy lost to the recoil electron. The energy of a quantum, however, is supposed to be always equal to $h\nu$, where h is

Planck's constant and ν is the vibration frequency of the radiation of which the quantum is a part. It follows that the frequency of the quantum after scattering will be lower and its wave-length longer than before scattering. The theoretical change of wave-length thus calculated agrees exactly with that observed experimentally in the "Compton effect."

Two other requirements of this theory have now been definitely established by experiment. According to the theory the scattered radiation comes off in spurts simultaneous with the ejection of a recoil electron; and such a coördination in time seems actually to have been detected by Bothe and Geiger (*Zeitschrift für Physik,* Vol. 32, p. 639). X-rays scattered from hydrogen were detected by means of their photo-electric effect. It was found that the production of such a photo-electron was often accompanied by the emission of a recoil electron at the same moment (or at least within the same ten-thousandth of a second), and such coincidences occurred eleven times oftener than they would have done if the scattering of X-rays and the production of recoil electrons had been processes independent in time of each other.

Again, according to the quantum theory there should also be coördination in space between the paths of the scattered X-rays and the points of ejection of the recoil electrons. To test this conclusion, A. H. Compton passed X-rays through a Wilson cloud-expansion apparatus (*Phys. Rev.*, Vol. 26, p. 289) and took stereoscopic photographs showing the tracks of the recoil electrons produced by the main beam along its narrow path and the tracks of the photo-electrons occasionally liberated in the surrounding air by X-rays which had been scattered from the main beam by the air. Out of 850 plates obtained, 38 showed on each a photo-electron track and also from one to three recoil electron tracks. On these plates the angle between the incident beam and the initial direction of the recoil track was measured; also that between the incident beam and a line drawn from the recoil track to the photo-electron track. In 18 cases these angles agreed within 20° with the requirements of the Debye-Compton theory. The chance of obtaining so many cases agreeing thus closely with the theory was estimated as only 1 in 250.

Such results seem definitely to contradict the wave-theory of X-rays; for if the scattered rays spread out in spherical waves, producing photo-electrons here and there as they go, there can be no spatial correlation whatever between the two kinds of tracks. A remarkable contrast to this is afforded by the fact that when the change of wave-length undergone by these same scattered rays is determined, it is done experimentally by reflecting them from a crystal, and the action of the crystal in forming a spectrum seems to be intelligible only if the scattered rays consist of waves. Thus the theory of radiation seems in 1925 to have arrived at an impasse for which there is probably no parallel in the whole history of physical theory.

Radioactivity.—Gamma rays spectra have been successfully explored by allowing the γ rays to impinge upon a "secondary radiator" and to eject therefrom secondary β rays, which were then deflected in a magnetic field onto a photographic plate; from the position of impact on the plate and the constants of the apparatus the energy of the β rays could be calculated (J. Thibaud, *Journ. de Physique*, Vol. 6, p. 82). The β ray spectra thus obtained consisted chiefly of narrow lines, indicating that these rays consist of a number of groups each characterized by a certain energy and speed. This result was interpreted to mean that the spectrum of the original γ rays consisted chiefly of monochromatic lines of frequency ν related to the energy E of the β rays in accordance with the Einstein equation

$$E = h\nu - W,$$

where h = Planck's constant, W = work done by an electron in getting out of an atom. When the same source of γ rays was used in turn with different secondary radiators, the β ray lines varied in position as they should do according to this equation when the known ionization energies for hard X-rays are substituted for W. Some 15 lines, of very irregular intensity, were thus detected in the γ ray spectrum from radium, the β ray energy varying from 233 to 1760 Kilovolts and the γ ray wavelength, calculated from the Einstein equation, varying from .05 to .007 A. Most of these lines correspond closely to the observed speeds of the natural β rays from radium, which supports the view that the latter are simply a photo-electric emission excited from the radium by its own γ rays.

Some observations by Blackett (*Nature,* Vol. 115, p. 493) at Cambridge are also interesting. He photographed, in two perpendicular directions, the tracks of 400,000 α particles in nitrogen. Besides a number of elastic collisions of the α particle with a nitrogen nucleus, eight cases of inelastic impact were found; these are ascribed to the ejection of a proton or hydrogen nucleus from the nitrogen nucleus. The fine track of the proton was clearly visible, also that of the recoiling nitrogen atom, but there was no trace of a third track. From this and other circumstances it was inferred that the α particle was simply captured and held by the nitrogen nucleus; such a capture would leave this nucleus with a mass of 17 and a charge of 8 units, so that it would be an isotope of oxygen.

Atomic Structure.—A. Sommerfeld has declared himself in favor of E. S. Stoner's modification of Bohr's scheme of structure for the more complicated atoms (*Physik. Z.*, Vol. 25, p. 70; Stoner, *Phil. Mag.*, Vol. 48, p. 719 and Vol. 49, p. 1289). Basing the argument upon the evidence of X-ray spectra, Stoner divides the L shell or level into three sub-levels, instead of two, the M shell into five, etc. Then he assumes the statistical weights of the X-ray terms, as found from the relative intensity of the X-ray spectral lines, to be proportional to the numbers of electrons in the various sub-levels. Accordingly the three L sub-levels contain, respectively, when filled, 2(Be), 2(C), and 4(Ne) electrons, as against the 4 + 4 electrons in the L shell according to Bohr.

Stoner's idea of the order of filling in of the sub-levels is particularly simple, there being none of the subsequent rearrangements postulated by Bohr. As we proceed through the periodic table from any one noble gas to the next, the first two electrons are added in a fresh outer shell, then one or more groups of electrons may be added in inner shells, taken in order, and finally two and four electrons respectively are added in two other sub-levels of the outer shell; the resulting completion of the first octet in the outermost shell gives us the next noble gas. The rare earths represent the filling up with fourteen electrons of the sixth and seventh sub-levels of the N shell; no other shell has so many levels occupied in existing atoms.

The new arrangement explains a number of facts connected with optical and X-ray spectra without disturbing the chemical successes of Bohr's scheme. It also fits in well with certain features in the magnetic behavior of atoms if we assume that, when an odd number of sub-levels has been completed in any shell, then the corresponding orbits possess a symmetry such that their magnetic moments cancel each other on the whole. If all occupied shells are in this condition of symmetry the atom as a whole will possess no resultant moment and must be diamagnetic. Thus the noble gases and the vapors of Zn, Cd and Hg are diamagnetic, and observations by Gerlach and Stern on the passage of atoms of the latter three elements through a magnetic field show them to have no magnetic moment. Ionized K and singly ionized Cu also have zero magnetic moment. Silver, gold and neutral copper atoms were found by Gerlach and Stern to have a moment equal to one Bohr magneton, in harmony with the theory.

As another purely theoretical contribution to atomic theory we may notice the new results on the scattering of light by an atom reported by Kramers and Heisenberg (*Zeitschrift für Physik,* Vol. 31, p. 681). They regard the atom as a "multiple periodic" system of electrons whose motions are not simple harmonic but can be represented by a Fourier series of simple-harmonic terms. When a train of simple-harmonic waves of a definite frequency falls upon such an atom it excites, according to classical theory, vibrations which, when resolved by Fourier Analysis, contain the frequency of the incident waves and also the frequencies obtained by adding to this or subtracting from it the sum or difference of any two frequencies occurring in the natural motion of the atom. All of these vibrational frequencies would then, according to classical theory, appear in the light emitted by the atom; the light of the same frequency as the incident light would constitute the ordinary resonance radiation, while that of other frequencies would represent a sort of fluorescence. These facts are then translated into results to be expected on the quantum theory, by means of Bohr's correspondence principle; but the exact bearing on experimental results is not known at the present time.

Further results on isotopes have been announced by Aston (*Phil. Mag.* Vol. 49, p. 1191; *Nature*, Vol. 116, p 208): bismuth, the heaviest atom yet analyzed, with atomic weight 208.0 contains only one isotope; iron, of atomic weight 55.84, contains atoms of weight 54 as well as 56; mercury atomic weight 200.6, contains isotopes with weights 198, 199, 200, 201, 202 204. An isotope effect on band spectra is reported by R. S. Mulliken (*Phys. Rev.*, Vol. 26, p. 1), who found that the bands emitted by cuprous iodide are double; the stronger set comes from molecules containing a copper atom of weight 63 and the weaker from molecules containing the other isotope of copper of weight 65

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DIVISION XXXII
BIOLOGICAL SCIENCES

ORGANIC EVOLUTION

By H. S. Jennings
Professor at Johns Hopkins University

The present time sees in progress a notable advance in the understanding of the nature and origin of mutations and "what are called species" and through this, possibly, of some of the major factors in evolution. The nature of this advance may be set forth as follows.

Evolution and Chromosomal Changes.—The way in which an organism develops and the characteristics it produces are known to depend, in large measure, on the stock of substances present in its chromosomes; these, by interaction with each other and with other things, produce the developed organism. Altering any of these substances alters the characteristics produced. Any such alteration that is handed on to new generations results in new inherited characteristics, in a "mutation," a new "elementary species." Evolutionary change lies essentially in the permanent alteration of the chromosomal substances.

Certain methods by which these substances are altered are coming to light. An individual at the beginning is formed by the union of two germ cells, and each of the two germ cells contains a single "set" of chromosomes—of definite constitution and number. The individual so produced thus contains two such sets; its chromosomes are in pairs. In development all the chromosomes divide at each cell division, so that all the cells of the typical individual contain the two sets. Alternations of the chromosomal outfit are found to occur as follows:—

1. **Divisions.**—Sometimes the chromosomes divide and thus double, without cell division. This may happen in the fertilized egg, so that it now contains four sets in place of two. Thereafter cell divisions coincide with chromosomal divisions, so that an individual is produced with four sets of chromosomes in its cells. Such individuals are larger, with larger cells and organs, and may differ in structure from the parent stock, with but two sets. They now propagate themselves in the usual way, so that a mutation or new race is produced. One of the well known mutations of Oenothera is of this nature, and races with four sets of chromosomes are known for several organisms.

2. **Three Sets.**—These individuals with four sets produce germ cells with two sets; such a germ cell may unite with one containing but a single set, thus producing an individual with three sets. These differ both from those with two sets and those with four sets. The odd number of sets of chromosomes causes disturbances in the usual method of reproduction by union of two germ cells, but such individuals with three sets at times reproduce from a single germ cell, yielding thus a permanently diverse race.

3. **Classes.**—Irregularities in germ cells in races with three sets of chromosomes give rise to numerous different classes of germ cells, with diverse combinations of chromosomes. Some of these on union with other germ cells can develop; they thus give rise to hereditarily diverse races.

4. Single Germ Cells.—In producing germ cells, the two chromosomes of a single pair normally separate into different germ cells. Failing to separate, they may pass together into a single germ cell, while a corresponding germ cell is produced entirely lacking any representative of this pair. Thus some of the germ cells have one more chromosome than normal (that is, $n+1$); others one less ($n-1$). Such germ cells may now unite with another having either n, $n+1$, or $n-1$ chromosomes, giving rise to individuals of various diverse numbers of chromosomes. Such individuals differ among themselves in their hereditary characteristics; they are known in Oenothera and many other organisms.

As the different chromosome pairs differ in their effects on development, diverse results are produced in different cases, depending upon which chromosome pair thus has two representatives, or none, in the individuals produced. The occurrence of this kind of change ("non-disjunction" of the chromosomes) has been observed in a number of species.

5. Hybrids may be produced by intercrossing of stocks having different numbers and combinations of chromosomal materials, with new or irregular numbers of chromosomes. Some of the chromosomes from the two parents are at times incompatible; so that these alter or destroy one another; while others work together readily. Thus a great variety of individuals, with varied combinations of chromosomal materials, are produced. Some of these cannot reproduce and are eliminated. Others do reproduce, giving rise to diverse stocks ("mutations," "elementary species," and the like). By combinations of these and other methods, and by intercrossing among the stocks so produced, a great variety of diverse stocks results. Phenomena similar to or identical with the "mutations" in Oenothera, in Drosophila, and in other organisms occur in such cases; the sporadic appearance of new types, some of which reproduce themselves, while others do not, or do so but scantily. Natural selection on a large scale operates in these new stocks, many being at once eliminated, while others persist.

Observations.—These processes and results observed both in breeding work and under the microscope, in many organisms. A description of many of these cases, with discussions of their relation to the origin of mutations and of species, by a number of investigators, will be found in the *American Naturalist* for May-June, 1925 (1); accounts of them are given also by Gates (2), Lotsy (3), Jeffrey and Hicks (4), Boedijn (5), Hurst (6) and others.

Many of the species described by the systematist are found to differ in their chromosome numbers in exactly such ways as would result from the processes outlined above. Thus in wild roses, the number of chromosomes in a set is 7; some species have 2 sets; others 3 sets, others 4, others 5, others 6, others 8, and similar conditions are found in other plants [see (1), (2), (6)].

The Relation to Evolution, particularly of the changes resulting from hybridization, to the evolutionary process, is judged somewhat differently by diverse investigators. Practically all agree that many of the diverse organisms that in taxonomy are called species are produced in this way; it is at least one method of "the origin of species." Lotsy (3) holds the production of such changes by hybridization to be the chief method of evolution. Jeffrey (7), on the other hand, holding the "mutations" of Drosophila to be of this type, argues that they therefore do not exemplify evolutionary change. On the whole it appears probable that changes of this kind play a great rôle in producing the lasting diversities observed in the organic world. They cannot, however, account for the first diversities that must have appeared before new ones could be produced by interaction of those already present [see Lotsy].

6. Artificial Production of Chromosomal Changes.—Mavor (8) reports that by the action of x-rays on Drosophila certain chromosomal irregularities were produced (of the sort described in paragraph 4 above) and that these resulted in heritable changes. Such work is only in its beginning.

7. Attempts to alter the apparatus of inheritance somewhat less directly, by the action of physical and chemical agents on the developing organism, have continued. The outstanding work is that of Guyer (9). Inherited eye abnormalities were induced in a few cases by injecting ground up lens material into the pregnant mother. Huxley and Carr-Saunders (10), on the other hand, in an attempt to repeat this work on an extensive scale, found it impossible to observe such results.

8. Still more indirect attempts to alter permanently the apparatus of inheritance, so as to yield "the inheritance of acquired characters" have continued. Typically, these consist in the following: by supplying a certain environment, the organism is induced to develop certain characteristics which it would otherwise not have developed; then later generations are tested as to whether they in consequence, even without that environment, produce in some degree these new characteristics. Kammerer (11) has published a book giving the experimental evidence and general arguments for this, based upon his own extensive researches in the matter.

Eldridge's book (12) makes an extensive affirmative argument for the inheritance of acquired characters, while a chapter in Morgan's recent book (13) presents an argument for the negative. A most excellent and impartial brief summary of the state of knowledge on this matter is given by Detlefsen (14).

Production of New Varieties in Nature.—Crampton (15) publishes a continuation of his researches on the Variation, Distribution and Evolution of the Genus Partula in some of the Pacific Islands. "All of the evidence proves that specific and racial diversification of the material under investigation is due to the operation of internal factors and not to external influences" (p. 2). This thus agrees in so far with what is set forth in Section I, above.

Scopes Evolution Trial.—Popular interest in organic evolution was greatly stimulated in 1925 by the Scopes trial, under the Tennessee law forbidding the teaching of evolutionary doctrines in the public schools. There was a consequent great demand for information and elucidation, resulting in many articles in the magazines, and a number of books. A symposium on the Evidences for Evolution, by well known men of science, was published in the *Scientific Monthly* (16) for August, followed in the September issue (17) by the statements on the matter prepared for the Scopes trial by the scientific witnesses for the defense.

Among the books brought out by the great demand for elucidation of the subject are small volumes by Parker (18), Kellogg (19), and Osborn (20); more technical is the volume by Morgan (13). On the other side, More (21) has published a volume criticizing sharply the various doctrines based upon or subsidiary to the general doctrine of evolution; particularly its supposed philosophical and sociological implications.

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VERTEBRATE ZOOLOGY

By James Ernest Kindred
Professor at University of Virginia

Morphology.—In view of the recent interest aroused by Krogh, the experimental observations of E. R. and E. L. Clark (*Am. Jour Anat.*, 35, no. 2) on the mechanism of contractility in the capillaries of the tadpole tail are significant. These investigators have patiently watched developmental changes in the transparent tail. They have observed the development of the capillaries by sprouting from other capillaries. The capillaries so formed are embraced by connective tissue cells, comparable to the cells of Rouget. Careful study of the capillaries in experimentally produced capillary contraction shows that the endothelial cells are inherently contractile. The endothelial wall of the capillary was observed to draw away from the Rouget cells. These observations establish definitely the status of the endothelial cell as an independent contractile unit.

Higgins, from a study of the lymphatic system of newborn rats injected with india ink, concludes that a greater number of lymph channels, but fewer lymph nodes, are present at this time as compared with the adult rat.

The microscopical anatomy of the so-called hairs, on the "hairy frog," Astylosternus robustus, shows them to be accessory respiratory organs according to Noble. Noble has found that their development is correlated with a diminution in the respiratory surface of the lungs. Structurally the hairs are reduplications of the integument and their epithelium is penetrated by capillaries. Furthermore, the hairs are found only on the male of this species; capillaries are present in the skin of the corresponding regions of the female, but no hairs occur. Another interesting correlation between the vascular and respiratory systems described in this paper is the coincidence of varying degrees of lunglessness and a reduction of the left auricle of the heart in some amphibia, and in others a fenestration of the interauricular septum. From these facts it would appear that the structural nature of the heart is to some extent dependent upon the manner in which respiration is carried on.

The interest of hematologists has been centered for a long time on the genetic relationships between the several types of blood cells in the vertebrate body. Jordan (*Am. Jour. Anat.*, 35, no. 2), as a result of the reactions of the segregation apparatus of certain of the leucocytes of frog's blood to neutral red staining and the phagocytic reaction of the cells to injections of india ink, infers that a genetic relationship exists between the cells exhibiting these reactions. The segregation apparatus appears in a closely graded series of transitional stages from monocyte to lymphocyte. Such a gradation Jordan interprets as indicative of a genetic relationship between these cells. There is also a gradation of phagocytic response on the part of the leucocytes toward India ink particles. This response is independent of the segregation apparatus. The monocytes are the most active phagocytes, the lymphocytes are slightly phagocytic, while the neutrophils take up only a few fine particles.

Leucoplastids occurring in the blood of urodeles are considered by Emmel to be derived from thrombocytes and basophilic mast cells. Such cytoplasmic elements are believed to be representative of the cytoplasmic fragments (red blood corpuscles and blood-platelets) of mammalian blood.

The bronchial movements of man have been subjected to X-ray photography by Macklin in order to find out the relationships of the bronchial tree during breathing. He finds that the branches of the bronchial tree elongate and dilate on inspiration, and shorten and narrow on expiration. The root of the lungs, together with the lower end of the trachea and bronchi, descends in inspiration and ascends on expiration.

Izawa states that the proportional increase in weight of the pineal body of the albino rat from birth to maturity is less than that of any other organ in the rat. The increase in size of the pineal body is caused by the hypertrophy of the parenchymal cells.

Langworthy, from a morphological study of the panniculus carnosus, finds that in rodents it is closely associated with the pectoral musculature. Branches of the cervical plexus which innervate the pectoral musculature also innervate the panniculus carnosus.

According to Fell the cartilage matrix in the long bones of the chick is formed as a secretion of the chondroblasts and is not an extension of their cytoplasm.

Latimer has followed the comparative increase in weight of the central nervous system of chickens during postnatal development. He finds that the increase in weight of the central nervous system from hatching to maturity is as follows: brain, 4.2 times; mesencephalon, 3.4 times; cerebellum, 4 times; medulla, 4.5 times; prosencephalon, 4.7 times; and spinal cord, 19 times.

Embryology.—During the past year several important contributions have been made to the much debated problem of germ-cell origin and specificity in vertebrates. G. T. Hargitt (*Jour. Morph. and Phys.*, vol. 40, no. 3), from a study of the development of the germ cells in the albino rat, concludes that they arise from the peritoneum in the region of the genital ridge. He says, "The argument for the specific character of the germ cells in vertebrates and their continuity from the egg is based largely upon assumption, and not upon substantial observations and must be discarded. Germ-cell origin is a problem of cellular differentiation, and not of early segregation." As additional evidence for this idea of cellular differentiation we have the results of Davenport's ovariectomy experiments on mice. He removed one or both ovaries from mice and found that in about two-thirds of the cases ovaries were regenerated. Some of the mice with regenerated ovaries became pregnant and the ovaries contained the corpora lutea of pregnancy. From his observations Davenport concludes that ovarian tissue may arise *de novo* from the peritoneum and the new ovaries show evidence of functional activity.

New data on the estrus cycle in the mare are given by Seaborn. He finds that the cycle lasts twenty-four days, divided as follows: rest, 8 days; proestrus, 3 days (period of heat, but will not accept male); estrus, 3 days (in heat and will accept male); metestrus, 10 days. The uterine and ovarian phenomena associated with the phases of the cycle conform with those found in other mammals which have been studied intensively. Seaborn agrees with Edgar Allen that estrus is the product of the follicular fluid and not of the corpus luteum.

L. B. Arey (*Anat. Rec.*, vol. 30) gives the following simple formulæ for estimating the age and size of human embryos:

Standing height (cm.) × 0.2 = Age (months).

Sitting height (cm.) × 0.3 = Age (months). (For embryos less than 10 cm. add one month.)

Age (months ÷ 0.2 = Standing height (cm.).

Age (months) ÷ 0.3 = Sitting height (cm.).

Swenson gives directions for producing cerebral anemia in the rat, which he says are efficacious in the study of fetuses in utero. His method is to ligate the external jugular veins and carotid arteries, thereby producing a physiological condition approximating that of decerebration. After operation the animal is immersed in a bath of warm saline and the living fetuses exposed for study. Favorable conditions obtain for about two hours.

Vogelaar and van de Boogert (*Anat. Rec.*, 30) have shown that it is possible to study the development of the hen's egg in vitro. The shell is removed and the egg floated in a salt solution or a medium made from the albumen of another egg. Development to the end of the fifth day may be studied by this method.

B. M. Patten presents morphological evidence for a valvular mechanism in the single interatrial septum of the heart of the chick embryo. From the positional relationships of a number of foramina in the septum, and the shape of the septum in reconstrutions of diastolic and systolic stages, Patten concludes that these foramina are opened åt diastole by the caval blood which forces its way into the left atrium. At systole the foramina are obliterated by the equalization of pressure in the atria and by the contraction of the interatrial septum itself. These foramina and the adjacent flaps may therefore be interpreted as functioning in a manner comparable to the foramen ovale, the septum primum and the septum secundum of the fetal human heart.

McClure and Butler give a very clear and complete description of the development of the inferior vena cava in man. Their stages comprise very young human embryos, and the important changes in the topographical relationships of the several pairs of primordial cardinal veins are emphasized. The postcardinal veins are not as important in the later stages of fetal development as they are in other mammals, consequently they atrophy early. The supracardinal and subcardinal veins are the most important contributors to the inferior vena cava. The pars hepatica of the inferior vena cava appears very early in development and marks the beginning of the asymmetry which is characteristic of the inferior vena caval system.

Dawson suggests that a small bone, the præclavium, the development of which he traced in the rat, is the homolog of the sternal epiphysis of the human clavicle. His suggestion is supported by the absence of a sternal epiphysis from the rat clavicle, and from the fact that the præclavium which develops in this region of the rat has an ossification history which parallels closely that of the sternal epiphysis in man.

From a study of a large number of specimens of adult and embryo cats, Boyden concludes that pancreatic bladders are derived from pancreatic primordia and not from the gall bladder, cystic duct, or ductus choledochus, as it would seem from their position in relation to the gall bladder. The principal evidence for this view is the fact that the wall of all pancreatic bladders examined is an hypertrophied pancreatic duct, and that the ventral pancreas of cat embryos is of regular occurrence and gives rise to accessory lobes some of which penetrate the loose mesenchyme in the region of the gall bladder.

Cytology.—Chambers and Renyi have made an important contribution to our knowledge of the physical relationship of epithelial cells. By microdissection they have demonstrated the presence of dense protoplasmic bridges between the component cells of stratified squamous epithelium; a slime-like cement between the cells of the transitional epithelium of the bladder; and the fact that the cells of ciliated epithelia are only closely adherent along the borders of their distal ends. They find that gland cells are the most fluid of the epithelial cells which they examined and that the cells of an alveolus of a gland, such as a pancreatic acinus, are held together by a fibrous investment. Furthermore, they have shown that the nuclei of epithelial cells are structureless and fluid, and that the nuclear material coagulates with extreme ease upon mechanical injury.

In the ninth of a series of papers on the nature of mitochondria, Wallin presents evidence from cultures of liver tissue from fetal, newborn, three-week-old and adult rabbits which he thinks demonstrate definitely that mitochondria are of bacterial organism. His conclusions are based on the morphologic identity of mitochondria in degenerating liver cells of the cultured tissues with surface bacterial upgrowths obtained in previous culture experiments.

Wen Chao Ma presents evidence for the origin from mitochondria of the colloid in the follicle cells of the thyroid gland. The cells pass through a definite cycle leading up to the production of colloid. In the early stages the mitochondria show signs of growth and proliferation. In the final stage the mitochondria, in granular form, swell and dissolve in vacuoles of cytoplasmic origin which form the colloid or characteristic stainable secretion of the thyroid gland.

Dolley as a result of a series of observations on the pancreatic tissue of white rats in various stages of induced functioning of the pancreas, concludes that there is a definite morphological and physiological relationship between the nucleus of a secreting pancreatic cell and its secretion. He shows that before zymogen is present, the nuclei are hyperchromatic. Then follows a stage of chromidial formation with a reduction in the chromatic character of the nucleus. Finally zymogen replaces the chromidial formations and the nucleus becomes small and shrunken. Eventually the zymogen escapes from the cell and it is exhausted both as regards nucleus and cytoplasmic content.

Additional information concerning the origin of osteoclasts is presented by H. E. Jordan. Basing his conclusions upon the study of bone marrow of larval and adult frogs whose growth has been affected by treatment with thyroid in the case of the larvæ and by removal of the spleen in the adults, Jordan finds that the osteoclast or giant cell of the bone marrow develops by the fusion of the predominating type of cell present. In the splenectomized adult they arise by the fusion of hemoblasts; in the thyroid-treated larvæ by the fusion of stromal cells. In normal adults, osteoclasts are very rare or absent.

Evidence for the erosive action of the cells of the cytotrophoblast layer of the mammalian placenta is given by Pljesakov. Placental tissue from the rabbits was cultured in vitro. The syncytial layer of the chorion degenerated, but the cells of the cytotrophoblast gave rise to giant cells which invaded the nutritive medium and accumulated fat droplets and other droplets which are thought to be protein in nature. These giant cells are also phagocytic and take up the embryonic and maternal blood cells which are left in the cultures upon the degeneration of the blood vessels. From their activities it is probable that these cells are the active agents in preparing the uterine mucosa for the implantation of the ovum.

W. H. Lewis has observed the engulfment of living blood cells, monocytes and hypertrophied monocytes by similar cells in hanging drop cultures of frog blood. From the relation of the engulfing cells to that which is engulfed, Lewis thinks that the engulfed cells are not taken into the cytoplasm of the engulfing cell. The reason for such engulfment is thought to be dependent upon some pathological condition in the animal at the time the blood was drawn.

Experimental. — The degenerative effect of section of extrinsic nerve fibers of the intestine on the intercellular fibers of the myenteric plexus in cats and dogs has been studied by S. E. Johnson (*Jour. Comp. Neur.*, vol. 38). He finds that the intercellular fibers degenerate upon cutting the extrinsic nerve fibers of the intestine and the vagus nerve. This he concludes is evidence that the intestine is supplied like other viscera with both craniosacral and thoracicolumbar innervation.

Another series of experiments on nerve degeneration has been carried on by W. F. Allen in the cat. The cutting of the mylohyoid branch of the trigeminal nerve produces chromatolysis (degeneration of the nucleus) in practically all of the cells in the motor root; section of the inferior alveolar and the lingualis branches of this nerve produce chromatolysis in connective tissue cells surrounding the motor root. The severance of the masseteric branch of this nerve had, however, no effect on the cells in and around the motor root. The latter effect was to be expected if the proprioceptive sense center for the masseter and temporal muscles lies in the mid-brain as Allen has previously demonstrated.

Detwiler and Lewis have shown that a unilateral excision of the fore-limb of Amblystoma before the nerves have grown into the developing limb is followed by a reduction of the brachial motor nuclei. A greater reduction is brought about by the excision of both fore limbs. According to these investigators these results indicate that the size of the brachial motor neurons is influenced both by the completeness of their functional connection with limb and by reflex connections with the local commisural neurons of the opposite side of the cord.

Hoadley (*Jour. Exp. Zool.*, 42) obtained some interesting results from grafts of embryonic tissues of the chick on to the chorio-allantoic membranes. In one series of experiments he used the somitic region of chicks of 36 to 48 hours' incubation. In these grafts, after they had been allowed to develop, there were found epidermis, spinal ganglia, gut, liver, pancreas, pronephros and mesonephros, striped and involuntary smooth muscle. His most important conclusion is that the somitic region when transplanted alone will differentiate independent of any innervation, a conclusion which is contrary to the hypothesis of formative stimuli of Herbst.

In another series of experiments Hoadley transplanted developing primordia of the somitic region (without the spinal cord) of a chick into the region of the mesencephalon of the same embryo. He found that nerve fibers, which under normal conditions of development, form correlation units in the optic center, grow out from the mesencephalon to the muscular tissue, mesonephric tissue and connective tissues developing from the transplant. Hoadley thinks that this is evidence for a great functional plasticity on the part of the nerve cells, and furthermore, that the factors concerned in the differentiation and growth of the nerve fiber must be of a very general nature, dynamic rather than chemotactic.

Additional evidence of the importance of the continuity of the nerve trunk for the proper functioning of neuroepithelial cells is submitted by Brockelbank (*Jour. Exp. Zool.*, 42). This investigator observes that the lateral-line organs of the catfish degenerate four days after cutting the lateral-line nerve. The lateral-line organs regenerate partially at 54 days and completely at the end of 116 days, presumably upon regeneration of the nerve.

Harrison (*Jour. Exp. Zool.*, 41) in a study of histogenetic changes produced by transplanting the primordium of the balancer of Amblystoma, confirms Baitsell's idea that connective tissue fibrils develop extracellularly. Harrison's experiments also show that the successful growth of a transplanted primordium depends upon several factors chief of which are: (1) similar ages of host and donor; (2) transplantation to a specific region of the body. Transplantation from a species in which a balancer is normally present to a host in which it is normally absent is favorable to the development of the primordium.

B. M. Allen has shown that when either the thyroid gland or the pituitary gland or both are removed from tadpoles limb development ceases. He interprets these findings as indicating a close correlation in function between the thyroid and pituitary glands.

Speidel has continued his studies on experimental hyperthyroidism in the tadpole with observations on the relation of this treatment to bilateral symmetry. He finds that normally in about 70 per cent. of cases, the left forelimb is the first to erupt in metamorphosis. This percentage is raised to 100 in experimental hyperthyroidism. The probable explanation of this phenomenon lies in the reactions of the cells, in the region of the asymmetrically placed spiracle, to the thyroid treatment. These cells evidently degenerate more rapidly than under normal conditions and allow the left limb to erupt with greater ease.

Speidel has interpreted eye-protrusion in thyroid-treated tadpoles as comparable to exophthalmos in man (*Jour. Am. Med. Assoc.*, vol. 83). Exophthalmos in the tadpole is interpreted as caused by an excessive proliferation of the cells in the ora serrata region of the eye.

In a study of the effect of hyperthyroidism on tadpoles' gonads, Speidel has shown that the interstitial cells increase in number. The spermogonia and oögonia are but slightly affected. Speidel suggests that this effect of hyperthyroidism on the interstitial tissue of the gonads is a part of the mechanism by which early maturity in secondary sexual characteristics is attained by hyperthyroid individuals, and conversely why hypothyroid individuals have a retarded maturity.

Liddell has given some interesting data regarding the effects of thyroidectomy in sheep. He has studied the effects on the skull, particularly. An undershot jaw is the most characteristic feature of the experimental animals. Defective development of the teeth, disproportionate relationships of the skull as a whole, and faulty ankylosis of the bones of the cranial base have also been observed.

Swingle and Nicholas (*Am. Jour. Anat.*, vol. 36, no. 1) have shown that autoplastic parathyroid transplantation is successful in cats. Tetany is prevented and the tissue survives. Homoplastic parathyroid transplantation was unsuccessful, and survival was rare, as in most animals the transplant degenerated and the animal died.

According to Warwick the testes of swine do not degenerate upon vasectomy.

R. K. Burns has added substantially to our understanding of the method of the determination of sex by his observations on experimentally joined (parabiotic) twins in Amblystoma. He joined Amblystoma larvæ together in side by side fashion at the time the medullary plate was closing, quite a time before the gonads begin to develop. According to the general distribution of sex in normal larvæ, which is one male to one female, the distribution as regards sex in the parabiotic twins should have been one male, two male-female, one female. But actually the distribution of sex approached the ratio of one male to one female. There were no bi-sexual twins. The significance of this experiment inheres in the fact that an original sex bias was evidently reversed in some cases. Furthermore, it shows that at a certain stage in development animals are plastic as regards sex, and that some agency, probably hormonal in nature, is sufficient to change the hereditary course of development of the hitherto indifferent gonad. No prepotency of either sex was observed. Evidently the "all or none" reaction took place, and the sex-chromosomes or sex-heredity complex was overpowered by the sex-hormone.

Jordan and Speidel, in summing up the effect of splenectomy on erythropoiesis in the frog, find that out of 64 specimens operated upon erythropoiesis was stimulated in the kidney in 35 to 46 per cent., in the fat bodies in 5 per cent., in bone-marrow in 11 per cent., and that no stimulation took place in 24 per cent. of the individuals. New spleens were formed in 8 per cent. of the cases. The life tenure of the frog erythrocyte is estimated at about 100 days.

H. M. Smith has presented some interesting results regarding the correlation between the size of cells in the animal body and the metabolic rate. He worked on amphibia and used the red blood corpuscle as the criterion of cell size, and carbon dioxide production as indicative of metabolic rate. He finds that in those amphibia with larger red blood cells, the metabolic rate is lowest; whereas in those with small red blood cells the metabolic rate is greatest. Therefore, he concludes that there is a direct correlation between the metabolic rate and the size of the cells in the body.

Pearcy and Koppânyi have shown that by dislocating one eye of a goldfish, and at the same time removing the other eye equilibrium of the body is disturbed and a tilting is produced of 45 degrees from the vertical in the direction of the horizontal plane. The reposition of the dislocated eye restores equilibrium immediately. The experimenters think that the tilting of the body is probably due to attempts on the part of the fish to keep its visual field in the horizontal plane, and furthermore, that this compensatory movement is a voluntary action.

By a series of experiments Boschma (*Biol. Bull.*, 48, no. 6) has shown that the change in color of the Javanese lizard, Ptychozoön homalocephalus, is controlled by the eyes. The actual change is caused by the contraction and expansion of the chromatophores in the cutis. Animals in sunlight with eyes covered have the same color as animals in darkness.

Adolph and Collins have been able to increase molting in the amphibian Diemyctylus by several methods. Under normal conditions molting is not very frequent; under laboratory conditions, however, it increases and death is preceded by numerous molts. In molting, a single superficial layer of cells separates from the subjacent cells nearly simultaneously over the surface of the whole body. Experimental induction of molting, by treating either with hot water or by bandaging the body or tail with gauze, is followed by a latent period of from six to ninety-six hours. According to these investigators the primary significance of molting is possibly the attempt to get rid of unautolyzable waste materials, such as wornout epithelial structures.

INVERTEBRATE ZOOLOGY

By Harley J. Van Cleave

Professor at the University of Illinois

Zoology.—Since the close of the Great War, America has assumed an unprecedented position of prominence in the various subsciences of the invertebrate field of Zoology. The literature for the year 1925 includes an especial abundance of references pertaining to Medical Zoology and Parasitology. The subjects of Ecology and Physiology of invertebrates have likewise attracted much attention. Morphology and Development have received relatively less emphasis in research publications than in former years. Some notable contributions to the literature in Systematic and Faunistic Zoology have been included in the year's inventory. In the following paragraphs, only a few outstanding or characteristic papers have been cited under the sundry headings as an index to the paths of progress though many references fully as significant have been omitted.

Medical Zoology and Parasitology.—Interest in the various phases of Medical Zoology and Parasitology has increased so much during the past few years that various journals and programs of scientific societies have accorded unparalleled prominence to these fields. The contributions of L. R. Cleveland at the Washington meeting of the American Association for the Advancement of Science were deemed of such merit that Dr. Cleveland was made the joint recipient of the Association Prize. One of his papers (*Biol. Bull.*, 48:455) records the results of subjecting termites to increased oxygen pressure. The Protozoa living as parasites in the termites were killed at oxygen pressures that did not injure the hosts. This discovery has particular significance in its application to the removal of protozoan parasites from invertebrates and the cold blooded vertebrates.

C. H. Barlow's "Life Cycle of the Human Intestinal Fluke Fasciolopsis Buski," stands as one of the significant contributions of the year (*Amer. Jour. Hygiene*, Monog. Series No. 4). The developmental cycle, experimental infestations, prophylaxis and control measures for Fasciolopsis are treated comprehensively.

Hookworm.—The control of hookworm disease has continued to demand attention. W. W. Cort (Ibid., No. 5, p. 49) has issued the final part (34) of the series of papers embodying the results of the work which he and his associates undertook in studying hookworm disease in Trinidad and Porto Rico. J. H. Sandground (*Jour. Parasitol.*, Vol. 11, p. 140) has recorded the presence of a new human parasite for America in his records of Rhabditis hominis from Virginia and Georgia.

Ecology and Physiology.—Considerable attention is being directed towards the conditions in the environment which control the distribution of forms of life. L. E. Noland (*Ecology,* 6:437) studied sixty-five species of fresh water ciliates in relations to temperature, dissolved oxygen, hydrogen-ion concentration, and amounts of free and fixed carbon dioxide of the water. He found that most species have a wide range of tolerance to variations in the factors studied. Samuel Eddy, in analyzing the distribution of marine Protozoa (Trans. Amer. Micros. Soc., 44:97) offers a classification under the two groups, Pelagic Formation and Beach Formation. B. H. Willier, L. H. Hyman, and S. A. Rifenburgh (*Jour. Morph. and Physiol.,* 40:299-340) have given a detailed study of the intracellular digestion in a flatworm, emphasizing the histochemical processes in their study of digestion in Planaria dorotocephala.

Organic Polarity.—E. J. Lund (*Jour. Exp. Zool.,* 41: 155) has investigated the experimental control of organic polarity by electrical current. He found that living tissue of Obelia produces a continuous output of electrical energy as distinct from the discontinuous character of the electrical energy produced by nerves and muscles. The cells possess an electrical polarity associated with their structural and functional polarity.

Morphology and Development.—Aside from the studies upon Protozoa and some of the worms, there have been few contributions dealing with the details of Morphology. Miss Hyman (Trans. *Amer. Micros. Soc.,* 44: 51) has given additional data on the morphology, especially of the reproductive system, of Planaria dorotocephala. Only recently have students of fresh water molluscs paid particular attention to characters other than those of the shell. A recent paper by H. B. Baker (*Proc. Calif. Acad. Sci.,* 14:143) gives a detailed account of the organization of a peculiar limpet-like Lymnæid snail from the West Coast.

The Morphology and Reproduction in the Protozoa have been given especial attention. L. L. Woodruff (*Amer. Nat.,* 59:225) has summarized recent advances in our knowledge of reproduction in this group and has concluded that the sexual cycle is neither universal nor even of as frequent occurrence as has been believed in the past. As a result of his studies on the significance of conjugation and endomixis in Infusoria, he concludes that a sexual reproduction is adequate for members of this group.

Caswell Grave and F. O. Schmitt (*Jour. Morph. and Physiol.,* 40:479-515) have studied the mechanism for coördination and regulation of movement of cilia. In the fiber-like structures within ciliated cells of molluscs they see a suggestion of conduction paths for stimuli. E. M. Landis (*ibid.,* 40:111-167) has found that conjugation in Paramecium multimicronucleata is, in its gross features, similar to that of Paramecium caudatum. He further found that the potentiality for the formation of extra vacuoles in Paramecium is a specific character of P. multimicronucleata. Walter N. Hess (*ibid.,* 40:235-259 and 41:63-93) has given a detailed account of the nervous system in one of the commonest laboratory animals, the earthworm, Lumbricus terrestris. In the second of these papers he has given contributions to the morphology and distribution of the light receiving cells.

Select References.—A group of papers from the Zoological Laboratory of the University of California has recently appeared giving the results of numerous investigations on problems in the Morphology and Development of Protozoa (*U. of Calif. Pubs. in Zool.*, 28, Nos. 1-5). David Causey has directed attention to the mitochondria in Endamoeba gingivalis and in Leishmania brasiliensis. R. P. Hall has made a study of mitosis and nuclear phenomena in Ceratium. Beatrice F. Howitt has given attention to the cultivation of Endamœba gingivalis.

Abnormal individuals at times furnish clues to the understanding of some of the factors and conditions concerned in development. F. Smith (*Trans. Amer. Micros. Soc.*, 44:90) has assembled the data upon abnormal specimens of an earthworm (Helodrilus subrubicundus) in his collections. C. L. Turner (*Biol. Bull.*, 48: 225) has added still further to the analysis of abnormal secondary sexual characters in crayfishes and finds that species differ greatly in their tendencies toward the production of supernumerary secondary sexual characteristics.

Systematic and Faunistic.—The literature of Systematic Zoology has been enriched by the addition of numerous shorter papers dealing with specific descriptions. Many species, formerly unknown, have been added to the ever increasing list of the known animal forms. Especially among the worms and the Protozoa are we confronted with a measure of the imperfection of our knowledge of the forms of life. One of the outstanding contributions toward our knowledge of the classification of the invertebrates is the monograph by Mary J. Rathbun on "The Spider Crabs of America" (*U. S. Natl. Mus. Bull.*, 129). Further works on the Crustacea include C. D. Marsh's recent key to the genera of fresh water copepods belonging to the family Centropagidæ (*Proc. U. S. Natl. Mus.*, 64: Art. 8) and G. S. Dodd's "Entomostraca from Colorado" (ibid., 65: art. 18). The seventeenth paper by C. B. Wilson on the parasitic copepods in the National Museum (ibid., 64: art. 17) presents further data upon the fishes which serve these parasites as hosts and upon the naming of the parasites.

Molluscs.—The papers dealing with new species of Molluscs are beyond enumeration in this article. Many of the types of molluscs in the collections of the U. S. National Museum were never figured until the recent contribution of Wm. H. Dall (*Proc U. S. Natl. Mus.*, 66: art. 17). The *Midland Naturalist* (9:321) carries an article by A. E. Ortmann on the mussel fauna of the Muscle Shoals region. With the completion of Wilson Dam the mussel fauna above the dam will be drowned. Ortmann found that the Tennessee River presents striking evidences of an ancient drainage entirely different from that of the present time. The lower part of the Tennessee has a rather pure Ohio type of fauna while in the region of Muscle Shoals a Cumberlandian type of fauna enters and ascending the river this latter fauna becomes more abundant as the Ohio types gradually disappear.

ECONOMIC ENTOMOLOGY

By William A. Hooker

United States Department of Agriculture

Societies.—The annual meeting of the American Association of Economic Entomologists—its 37th—was held at Washington from December 31, 1924, to January 3, 1925, with about 250 members in attendance. H. A. Gozzard of Ohio was elected President, and C. W. Collins of Massachusetts, Secretary-Treasurer. A new and revised list of common names for the more important insects occurring in North America was approved by the Association. The Association of Cotton States Entomologists held its annual meeting at Atlanta, February 3 and 4, with an attendance of 240. W. E. Hinds of Louisiana was elected President and G. M. Bentley of Tennessee, Secretary. The third annual meeting of the Rocky Mountain Conference of Entomologists was held in Pingree Park, Colo., August 17 to 22, with C. P. Gillett as Chairman and G. M. List as Secretary. The tenth annual meeting of the Pacific Coast Entomologists was held at Portland, Ore., June 18 to 20, with Leroy Childs of Oregon as Chairman and R. E. Campbell of California as Secretary. The annual field meeting of the Northeastern Entomologists was held at Washington, D. C., and vicinity on July 28 and 29 and at Frederick, Md., on July 30.

The Agricultural Appropriation Act of Congress, approved by the President on February 10, carried the sum of $2,554,743 for the Bureau of Entomology, $756,110 for the Federal Horticultural Board, and $200,795 for the enforcement of the Insecticide Act.

Insect Quarantines and Embargoes.—No new domestic quarantines against insect pests were laid, but several were extended, including those maintained against the Japanese beetle, European corn borer, and satin moth. A rehearing was held by the Secretary of Agriculture, on November 17 and 18, on the embargo against certain foreign bulbs, scheduled to become effective January 1, 1926.

Gypsy Moth.—While the gypsy moth infestation was light over most of the infested area more eggs were deposited than in the preceding season. There was, however, a very sudden increase on Cape Cod, where nearly 25,000 acres were completely defoliated. The barrier zone on the western border of the infested area was scouted and only small infestations located, all of which were treated. The territory infested in New Jersey has been so greatly reduced that only one focus was located within the outside area, fewer infestations having been found than at any time since the gypsy moth was discovered in New Jersey. An infestation discovered at Henrysburg, Quebec in 1924 was thoroughly treated and no new infestations located. No change was made during the year in the area quarantined.

Brown-Tail Moth.—This moth caused considerable defoliation in neglected apple orchards in southern Maine and New Hampshire. The infestation was light over most of the infested area, and no change was made in the quarantined area.

Satin Moth.—The satin moth spread rapidly during the year, poplars and willows being entirely defoliated in many towns extending from Cape Cod to the southern part of Maine. It now occurs in southern Maine and New Hampshire, as far west as central Massachusetts and the eastern third of Rhode Island, and locally in the State of Washington. The quarantine placed against its spread by the Federal Horticultural Board was extended on November 3 to include the States of Maine, Rhode Island, and Washington.

Japanese Beetle.—The quarantine of farm products from the infested area in New Jersey and Pennsylvania (from June 15 to October 15) has had a marked influence in restricting the local spread of this foreign invader, while the quarantine on infested nursery stock has prevented its dissemination through long distant shipments. In 1924 it extended its infestation into 5,122 square miles of new territory, but in 1925 its spread was restricted, having been the smallest in proportion of any year on record. Its economic importance. however, rapidly mounted, due to its increase in the infested area. The infestation discovered in 1924 near Milton, Pa., a point about 150 miles distant from the infested area, appears to have been eradicated, no beetles having been discovered during the year. A new attractive agent for use in control work, known as Geraniol, which was developed during the year by the Japanese Beetle

Laboratory, at Riverton, N. J., has given remarkably good results. By its use the beetles are attracted to a limited area where they can be killed by a contact spray consisting of oleoresin of pyrethrum and soap.

Mexican Bean Beetle.—This beetle continued its spread westward in Tennessee and Kentucky and now occurs over the greater part of West Virginia, southwestern Pennsylvania, southern Indiana, and practically all of Ohio.

European Corn Borer.—This important enemy of corn, first discovered in the United States in Massachusetts in 1917, has continued to spread, and from its western focus, including a wide belt surrounding Lake Erie, is now making a rapid advance into the Corn Belt. During the year approximately 18,000 square miles of new territory in Michigan, Ohio, Pennsylvania, and New York was invaded by it. A field meeting and inspection of the infested area late in October was largely attended by State and Federal officials, who were greatly impressed by the danger that threatens the Corn Belt. The growers and canners of sweet corn in western New York suffered losses of from 50 to 100 per cent. of the crop, and the indications are that the losses of this kind will be materially extended and increased in 1926.

Oriental Peach Moth.—Introduced into this country with flowering cherry stock from Japan and discovered in the District of Columbia in 1916, this serious enemy of the peach has continued to spread and now infests the territory east of the Alleghany Mountains, all the southeastern United States as far west as the Birmingham district of Alabama, and has appeared in Texas and Arkansas. In control work in New Jersey, Stearns has found spring cultivation to a depth greater than 3 in. to destroy 100 per cent. of the overwintering larvæ and pupæ on the ground about the tree. A combination fungicide-lead-arsenate-nicotine (1:800) spray gave the best control, resulting in an increase in clean fruit of 13.3 per cent.

Cotton Boll Weevil.—This enemy of cotton in its northern and eastern spread reached the limits of the Cotton Belt in 1923. The year 1925 as a whole saw a comparatively light or subnormal infestation by it, making a second in succession. The successful use of the airplane in applying the calcium arsenate dust resulted in some 80,000 acres being dusted under contract by a commercial company, with every prospect for a marked increase in 1926. An average of three applications was made, 5 lbs. being applied per acre at each application, at a cost of approximately $5.50 per acre. The closely related form of the boll weevil occurring on wild cotton in Arizona was found attacking cotton grown near by, and attempts are being made to prevent its spread.

Pink Boll Worm.—The invasion of the United States by what is probably the most serious known enemy of cotton took place in carloads of cotton seed from Mexico in 1916. The introductions in this way resulted in its infestation of cotton fields in both Texas and Louisiana. Since that time an attack has been maintained against it by the Federal and State Governments, coöperating, through the Federal Horticultural Board, and a quarantine has been maintained against all infested areas. Cotton growing in such areas has been destroyed; and all cotton from Mexico has been fumigated. As a result, all the infested areas of eastern Texas and Louisiana have been cleared of the pest, with the release during the summer of two counties in Texas. This eradication of the pest in humid areas stands as one of the most important accomplishments in applied entomology. Isolated infestations near Carlsbad, New Mexico, and in western Texas near El Paso, and in the Big Bend district still exist, no attempt having been made to stamp them out. Its invasion of Porto Rico was practically completed during the year. Its occurrence in Queensland, Australia, was definitely established.

Mosquitoes and Malaria Control.—Several cities have made use of waste crankcase oil, which can be obtained free of cost, combined with one or two parts of kerosene, in combating mosquitoes. Newport News, Va., found a mixture of equal parts to be a good larvacide. When sawdust is soaked with this mixture for four to five days it becomes saturated. Sown broadcast on the water, it sinks to the bottom, and oil is given off for four or five days, producing a continuous film. Little Rock, Ark., following the example of Memphis, Tenn., used waste crank-case oil mixed with two parts of kerosene over a control area of 68 square miles.

Insecticides and Insect Control.—It was pointed out by Moore that the common arsenical insecticides may be so manufactured that they will contain an absorbed positive ion—which insecticides then show great adherence to plants and resist the washing effects of rain and dew. Van Leeuwen, working at the Japanese Beetle Laboratory in New Jersey, has perfected a method for coating arsenate of lead. When coated with lead oleate, this insecticide is no longer a repellent to that beetle, it spreads evenly, adheres well to the foliage, and is practically unaffected by rain, which results in a saving of material and a reduction in the number of applications necessary. Experimental work in Idaho indicates that a single application of the arsenical spray is sufficient to obtain satisfactory control of the alfalfa weevil. Working with the Mexican bean beetle at the Tennessee Experiment Station, Marcovitch has found sodium fluosilicate to be less expensive and to kill more rapidly than arsenicals. A bait containing sodium fluoride was found by Ripley to have several advantages over other baits used for cutworms. Lipman and Gordon claim to have met with success in destroying, within 24 hours, all the aphids on leaves of certain trees through the injection of soluble insecticides into the trunk. Methods by which the distribution of insecticides on leaves may be made visible were described by Morgan and Newborne and by Hamilton. It was pointed out by Yothers and Winton that all emulsions stabilized with any of several colloidal substances, such as casein, milk, etc., are miscible with deep-well or hard waters and also with lime sulfur solution at dilutions varying from 1:10 to 1:100. Fish oil was found by Hood to be an efficient adhesive in arsenate of lead sprays.

Plank reported that the camphor scale seems to be well controlled by most oil sprays. Work conducted in Georgia during 1922-1924, reported upon by Alden, has shown 2 per cent. lubricating oil emulsion made from either the boiled or cold formula to give excellent control of the San José scale without tree injury even when twice used in one dormant season, while lime sulfur gave poor control. De Ong and King in California found in experiments with highly refined lubricating oils against the citrus red scale that their insecticidal value depends upon their mechanical properties rather than upon any inherent toxicity. Melander of the Washington Experiment Station found caseinate spreaders to detract from the effectiveness of oil sprays when used experimentally on San José scale and on eggs of the leaf roller. He found the lighter lubricating-oil sprays to kill as high as 98.8 per cent. of the eggs of the fruit-tree leaf roller. The onion maggot was found by Flint and Compton, in Illinois, to be largely held in check by Bordeaux oil emulsion at a cost much lower than the less effective corrosive sublimate.

Harned and Allen found that the superheating of rooms to a temperature of 120° F. or above for several hours will destroy practically all bed bugs. This temperature was easily obtained during hot summer weather by turning on the steam heat.

The discovery of the insecticidal value of the aliphatic fatty acids in the free condition, by Siegler and Popenoe, bids fair to be far-reaching in its effects. When prepared from coconut fatty acids and compared pound for pound with commercial 40 per cent. nicotine sulfate preparations, equally good results have been obtained and at a much lower cost per gallon of spray mixture. This series of products has been patented and will soon be placed upon the market under license by the inventors.

Aphid infestations of cauliflower beds were controlled by Hackett by the use of nicotine dust hydrated mixtures. In tests in Pennsylvania, Eyer found that an exceedingly high percentage of the adults and nymphs of the grape leafhopper were killed by both the "A" and "B" calcium cyanide dusts, thus confirming the results obtained by Quayle in California. Extensive experiments conducted by Fleming has led him to conclude that carbon disulfide emulsion in water is best adapted for freeing the soil about the roots of nursery stock of possible infestation by the Japanese beetle. A method by which "balled" nursery stock can be fumigated with carbon disulfide for the Japanese beetle was reported by Leach and Fleming. The use of wormseed oil and carbon disulfide emulsion as dips were found by Leach and Johnson to be the best materials for destroying the Japanese beetle larvæ present in the matted root system of herbaceous nursery stock. Used against greenhouse aphids at a strength of ¼ lb. per 1,000 cu. ft. of space, Weigle obtained 100 per cent. mortality with calcium cyanide. Woglum and La Follette found certain sprays to give results superior to fumigation for control of the black scale on citrus in California. This pest was successfully controlled by fumigation up to about 1910, since which time it has developed an increased resistance and become a serious pest over a thickly planted citrus area more than 30 miles long. A nonexplosive and noninflammable gas composed of ethyl acetate in combination with carbon tetrachloride was recommended by Back and Cotton for use in the fumigation of grain in grain cars, etc.

Insect Transmission of Plant Disease.—Working in Pennsylvania, F. T. Smith found the plant louse, *Aphis rubiphila* to be the only one of a number of insects to transmit the infection of raspberry leaf curl. The disease is transmitted from black to red raspberries, but not from red to black varieties. Olitsky found the mealybug *Pseudococcus citri* to be a vector of the mosaic virus of tobacco and tomato.

Apiculture.—One of the important developments in this field was the report by the Federal Bureau of Entomology upon a new electro-mechanical apparatus devised by Lundie, by means of which the flight of bees to and from the hive can be quite accurately determined. This opens up a wide field for investigations on the flight activities of bees. The alcohol-formalin solution, consisting of 20 per cent. formalin in alcohol, which was invented by Hutzelman for treating combs infected with American foulbrood, appears to successfully sterilize such combs.

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ENTOMOLOGY

By E. Porter Felt
State Entomologist, New York

General.—There is no group which lends itself to either amateur or technical effort better than insects. They are to be found everywhere and present innumerable problems, both structural and biological. There is a marked tendency to study insects under natural conditions, stimulated in no small measure by the biology courses of schools and colleges and the sympathetic attitude of museum authorities.

The Station for the Study of Insects conducted under the joint auspices of the American Museum of Natural History and the Palisades

Interstate Park at a location near Tuxedo, N. Y., was a most interesting innovation. The plan was to show woodland and field insects under natural conditions, the various "exhibits" being located along forest paths and beside sylvan streams. There is no more inspiring educational agency than nature interpreted by a sympathetic guide.

The appeal of the wild to the expert was evidenced by the third Rocky Mountain conference of entomologists held in Pingree Park, Colo., during August and attended by a considerable number of widely scattered entomologists. "Tuning in" with nature was a conspicuous feature, though recreation and good fellowship were by no means absent.

Nomenclature.—The problem of names is a serious one for the entomologist on account of the extremely large number of genera and species he is compelled to deal with. Messrs. Felt and Bishop have proposed recently (in *Science*) a system of alphabeted prefixes to be used as a part of current generic names (the first letter of the genus to be capitalized), in an effort to secure a system of designations which would automatically place themselves in a somewhat generally recognized classification and at the same time greatly lessen the probability of the creation of homonyms—identical generic names applied to widely different forms. The system would also permit the use of shorter, more descriptive names.

Collections.—A noteworthy collection of Coleoptera or beetles containing about 16,000 species, probably 6,000 types, was bequeathed to the U. S. National Museum by the late Thomas L. Casey, together with an extensive library. This collection is one of the largest additions ever received by the National Museum. It will be arranged and made available for study by experts.

The notable E. P. Van Duzee collection of Hemiptera or true bugs has been presented to the California Academy of Science, Mr. Van Duzee retaining the privilege of temporarily withdrawing specimens for study.

The Erastus Corning collection of Lepidoptera has been transferred to the custody of the New York State Museum and this, with the collections of the late J. A. Lintner and W. W. Hill, comprise a group of private collections which greatly increase the value of the New York State collections of insects. Such disposition of private collections cannot be commended too highly. They represent years of work and study and should be placed in safe repositories rather than be allowed to slowly disintegrate, the last an altogether too common fate.

Insect Distribution.—The appearance of the *Diptera of New England*, by Charles W. Johnson is a notable contribution to faunal entomology, since it gives numerous records concerning over 3,300 species and varieties found within that area. *The New York State List of Insects*, now going through the press, includes over 16,000 species. The abundant data will do much to stimulate the interest of both amateurs and professionals in making additions to a notable work. It was to be expected that the varied climatic conditions of New York State would support considerably more than the 10,385 species recorded from New Jersey in the 1910 list. A catalogue of the Coleoptera of Michigan is being compiled.

The comprehensive work on the *Insects of Connecticut*, already marked by the issue of four large contributions, is being continued and another may be expected in the not distant future. The reporting of aphids and lady beetles from the icy North-East Land, north latitude 80°, Spitzbergen Islands, over 800 miles from the probable source of origin, is an interesting side-light on insect distribution, especially when considered in connection with the somewhat numerous records of long-distance insect spread in other sections of the world, summarized and interpreted by Felt in the issue of *Nature* for September 5.

Check Lists.—A check list of the "Diurnal Lepidoptera of Boreal America," by Drs. Barnes and Benjamin, containing many changes and additions, will be published shortly by the Southern California Academy of Sciences.

General Texts.—*The General Textbook of Entomology*, by Dr. A. D. Imms, is a comprehensive volume dealing with the anatomy, physiology, development and classification of insects, and although published in London, includes a vast amount of information with an intimate bearing upon American entomology.

Structure and Phylogeny.—Exhaustive studies along these lines by Dr. G. C. Crampton have been continued, there being an excellent descriptive account of the external anatomy of the head and abdomen of the roach (*Psyche*, 32: 195) and an exhaustive study of the phylogeny of the labium (*Ent. Soc. Wash. Proc.*, 27: 68) of holometabolous insects, with particular reference to the Diptera or the two-winged flies.

Two valuable studies of immature stages have appeared, namely, *The Morphology, Taxonomy and Ecology of Tiger Beetles*, by Hamilton, and *The Puparia and Larvæ of Sarcophagid Flies*, by Greene (*U. S. Nat. Mus. Proc.*, 65: 1-87 & 66: 1-26).

Leaf Miners.—The studies of S. W. Frost have resulted in an exceedingly useful publication (*Memoir 78*, Cornell University Ag. Ex. Sta.) on the leaf mining Diptera or flies of North America. It is understood that this and similar studies of other leaf miners may be issued in textbook form. This treatment of a group with specialized habits illustrates one of the numerous ways in which insect life can be studied to advantage to science.

Honeybee.—The literature in relation to this insect is extremely large. Yet there is room for *Anatomy and Physiology of the Honeybee*, by R. E. Snodgrass. This volume differs from many technical works in the pleasing method of presentation, the very general absence of technical terms and the thoroughness with which the matter is treated. It is a notable contribution to literature as well as a scientific contribution of inestimable value.

Gall Midges.—The appearance of *N. Y. State Museum Bulletin* 257 entitled: "Key to Gall Midges, a Résumé of Studies I-VII, Itonididæ," by E. P. Felt, completes an important study begun in 1906, the first part of which appeared in 1913. This publication summarizes our information regarding the group and includes a key to the genera of the world. The index to parts I to VII permits ready reference to the earlier portions of the work.

Stone Flies.—*A Monograph of the Plecoptera or Stone Flies of America North of Mexico*, by J. G. Needham and P. W. Claassen, issued by the Thomas Say Foundation of the Entomological Society of America, is the first comprehensive account of this important and hitherto somewhat neglected group of insects.

Bugs or Hemiptera.—*The Bibliography of North American Hemiptera-Heteroptera*, by H. M. Parshley, issued as one of the fiftieth anniversary publications of Smith College, is an author-chronological list of the more useful works dealing with this large and important group of insects. It is stated that the issuance of a *Catalogue of the Hemiptera of the World* is contemplated by Smith College authorities, *Fascicle 1, Membracidæ*, by W. D. Funkhouser, to appear shortly.

Scale Insects or Coccidæ.—Prior to the work in this group commenced by Comstock in 1880, very little was known regarding this large series of insects, some of which have come to take rank as pests of the first magnitude. An important contribution: "Classification of Scale Insects of the Sub-family Ortheziinæ," by Harold Morrison, has appeared in the *Journal of Agricultural Research* and gives a comprehensive and detailed account of the numerous species falling within the scope of this paper.

VERTEBRATE PALÆONTOLOGY

By W. D. Matthew

Department of Palæontology, American Museum of Natural History

Exploration.—The outstanding feature in the progress of vertebrate palæontology during the year and for some years past has been the extension of systematic exploration for fossils to regions hitherto little known. The extinct animals of North America and Europe have become fairly well known by a century of fossil hunting, although each year adds new discoveries. But Asia, Africa, South America and Australia are largely unexplored territory to the palæontologist; and it is in these continents that the most notable discoveries of recent years have been made.

Central Asia ten years ago was *terra incognita* to the fossil hunter. Explorations by the American Museum of Natural History and associated institutions, by the Geological Survey of China and by a number of scientific institutions in Russia, France and China are rapidly bringing together notable fossil collections and geological information. The American Museum explorations in Mongolia under Roy Chapman Andrews were continued in 1925 with great success.

Preliminary studies upon the faunas by Osborn, Berkey, Morris, Matthew, Granger, Gregory and others, published mostly in *American Museum Novitates* during 1925, indicate that Central Asia was an ancient land area with rather close connections with America in the Cretaceous and early Tertiary, with Europe and Africa in the later Tertiary; that it was the source of some but not all of the animals that appeared in the outlying continents at various epochs; and that open grassy plains followed by arid and desert conditions developed there earlier than in America and Europe. These conditions are regarded as unfavorable for the discovery of the Tertiary ancestors of man in Mongolia, but other parts of Central Asia may have been better situated.

The most remarkable discovery made in Mongolia is of the breeding grounds of Cretaceous dinosaurs. Eggs and nests of three or more different kinds of dinosaurs have been found at Shabarakh Usu; and every stage in the growth of one species, from the unhatched embryos to the adult animal, is represented by skulls and skeletons. From these same breeding grounds explorations of 1925 secured a series of skulls of the tiny mammals of the Age of Reptiles, contemporary with the dinosaurs, known hitherto by fragments of jaws and a single incomplete skull. These new skulls appear to be marsupials, but they may prove to be ancestors of the higher mammals. Other important finds are a large new horned mammal of very singular proportions, a gigantic new rhinoceros, and a great number of smaller animals. No less than forty additional dinosaur eggs were also secured.

South America.—The Field Museum has obtained a fine collection of South American fossil mammals from Patagonia and Bolivia, representing the strange extinct faunas of South America and including many rare and little-known species. Among those exhibited in the Field Museum may be seen a fine skull and jaws of a large carnivorous marsupial. In Tertiary South America, as in Australia to-day, the absence of true Carnivora gave opportunity for evolution of carnivorous marsupials of similar habits; but when the Isthmus of Panama enabled the true Carnivora of the northern world to invade South America the marsupial carnivores all became extinct. In Australia they still survive.

Africa.—The British Museum has carried on explorations in Tanganyika to secure remains of the gigantic dinosaurs first found in that region by the German explorers. Unfortunately this work has been interrupted by the death of the energetic Canadian fossil hunter, W. E. Cutler, who had charge of it. In an article on Eocene reptile bones from Nigeria, Baron F. Nopcsa sums up considerable recent evidence supporting the view that tropical Africa is and has been since the end of the Mesozoic a region of retreat and refuge for animals driven out of the northern world. Researches by Doctor Stromer of the Munich Museum on Oligocene mammals discovered in South Africa in 1921 partly support this view, but suggest also that Africa, like South America, was a region characterized by the independent evolution of a distinct fauna.

Other Fields in Australia and Tasmania in recent years have also yielded some remarkable extinct marsupials, including a skeleton of a large horned beast related to the Diprotodon, and of the giant horned tortoise, Miolania. But the Tertiary record of land animals of Australia is still to be discovered.

Researches upon large collections of fossil mammals published by the Chinese Geological Survey in cooperation with scientific institutions in Sweden have added largely to our knowledge of the extinct Carnivora and rhinoceroses of China.

A monograph on North American ground sloths by Chester Stock gives a detailed account of the occurrence and anatomy of these remarkable extinct animals. Merriam and Stock (*Pub. Carn. Inst.*, No. 347) describe the skeleton of the short-faced bear, Arctotherium, a characteristic animal of the Pleistocene of the New World.

Doctor G. Arthaber, in *Acta Zoologica*, Bd. v, 1924, gives a review of the Nothosauria, a group of early Mesozoic land reptiles from which the marine plesiosaurs appear to be descended. Many finely preserved skeletons of these interesting primitive Reptilia have been found in the Triassic and Jurassic formations of Central Europe. Another interesting extinct order of reptiles, the Placodontia, is found in the Trias of Germany, and some of the finely preserved remains in the Senckenberg Museum, Frankfurt-a-M., are described by Doctor F. Drevermann (*Abh. Senck. Naturforsch. Gesellsch.*, Bd. 38, Heft 4). These singular aquatic, mollusc-eating reptiles have never been discovered outside the Triassic of Germany. A finely preserved group of small fossil skeletons from the Permian of Saxony are described by Doctor F. von Huene as a new pelycosaurian (fin-backed reptile) (in *Geol. u. pal. Abh.*, N. F., Bd. xiv, Heft 5).

Taungs Skull.—A recent discovery of great importance is the "Taungs skull" described by Raymond Dart, from Buxton, South Africa. This skull is regarded by the best authorities as an extinct anthropoid ape which approached nearer to the human type than any of the existing apes. (See articles in *Nature* by Dart, Keith, Sollas, Broom and others, and in *Natural History* by Broom.) Its geological age is probably Pleistocene. Another important discovery is the "Galilee skull" of Neanderthal type, extending the known range of this extinct species of the genus Homo into the Near East. Another skull of the Neanderthal race was discovered this summer at Ehringsdorf in Germany. Three additional jaws of primates from the Siwalik beds of India are described by Gregory and Hellman in the American Museum Bulletin of 1925. These and other less notable discoveries are welcome additions to the very scanty evidence that the fossil record has afforded of the geological history of man and the higher apes.

ECONOMIC BOTANY

By E. L. Newcomb

Professor at the University of Minnesota

New Developments.—A number of outstanding advances in the field of Economic Botany have been made during 1925. This progress has come through activities in several rather widely different fields of botanic work.

In genetics, Mendel's Law has been an influential factor and has given impetus to the work. Studies on the hydrogen-ion concentration of the soil have influenced ecological studies and given rise to much investigation along these lines. Explorations into areas particularly in South America, the flora of which has not been completely studied, have brought to light new plants of value to mankind. Results of studies on some of these have been made public.

Medical Botany.—The favorable results obtained in medicine through the use of vitamins, insulin, and thyroxin and the detection of complex organic compounds possessing similar properties in plants have given great incentive for the restudy of practically all vegetable products used in medicine, resulting in greater attention being given to the development of medicinal plant, economic and poison plant gardens in connection with our educational institutions and pharmaceutical manufacturing establishments. The revision of the United States government standards under the Food and Drug Act has been completed during the year and many advances are recorded in the methods for testing the purity and strength of drug products as well as much new information on the morphological and chemical characteristics of plant material used in medicine.

Discoveries and Progress.—During the year, Dr. H. H. Rusby has completed the classification of the entire plant collection made on his last South American exploration. Some several hundred new species and eight new genera have been described. The complete data will be published early in 1926. The work of Dr. Rusby on these new plants has been followed closely by more economic studies by others. Dr. H. W. Youngken verified by histological studies the suggestion by Dr. Rusby that the drug "Mire" is derived from a species of *Brumfelsia* of the *Solanaceæ* and has determined the species as *B. hydrangeaformis.* Dr. T. S. Githens, working independently, has determined that "Mire" contains three principles closely related to, if not identical with, those in Manaca; namely, two alkaloids, both inducing paralysis of the voluntary muscles accompanied by twitching, and a crystalline, fluorescent principle, which is physiologically inactive. The mixed alkaloids of Caapi, another drug brought out of South America by Dr. Rusby, have been isolated in crystalline form in the laboratory of Seil, Putt & Rusby and are now being studied in the Mulford biological laboratory with respect to physiological action.

Agricultural Remedies.—Much progress has been made toward the development of agricultural plants which are disease resistant. Dr. E. C. Stakman, M. N. Levine and F. Griffee reported in *Phytopath.* 15: 691-698, 1925, the discovery of a variety of wheat which is resistant to black stem rust. Dr. J. G. Dickson has reported a strain of corn resistant to seedling blight and that wheat similarly immune is being developed. Dr. G. W. Keit announced that apple scab is about to be conquered. Working in greenhouses in which all sorts of weather and conditions can be produced at will, Dr. Dickson found that the fungus causing seedling rot was thwarted in its attacks upon the tender plant when the plant builds up a woody armor. This happens in the case of corn when the soil is warm, whereas in cold weather only mucilage-like substances are grown which provide a luxurious and destructive living for the fungus. The new corn has been bred so that it will grow as resistant to the fungus in cold weather as in warm. A strain of smut resistant corn has also been developed by workers in the Department of Plant Pathology at the University of Minnesota.

Vegetable Drugs.—New editions of the United States Pharmacopoeia and National Formulary were completed in 1925 and contain revised standards for some two hundred vegetable drugs and their preparations which will become official under the Federal and various State Food and Drugs Acts during 1926. These standards reflect the completion of a large amount of research carried out by Dr. Henry Kraemer, Professor E. N. Gathercoal, Dr. E. L. Newcomb, Dr. Carl Alsberg, Dr. Arno Viehoever, Dr. Albert Schneider, Dr. C. A. Dye, Dr. W. O. Richtmann, G. M. Beringer and O. A. Farwell. New or rewritten descriptions of all of the more important vegetable drugs have been prepared by these workers. The descriptions include the whole drug, the structure and the powder. Much new morphological data are included in these descriptions, especially with reference to the size of microscopic elements.

Determinations.—In preparation for the new standards, some twelve thousand determinations on the inorganic constituents of vegetable drugs were made. These results together with some fifty thousand determinations by other workers including alkaloidal assays, physiological assays and other assays were compiled by E. L. Newcomb, who served as the chairman of the sub-committee on Botany and Pharmacognosy during the latter part of the revision, and formed the basis for new standards. Over ten thousand specimens representing the material worked with, are now carefully indexed and preserved at the University of Minnesota and available for reference. A special committee, under the chairmanship of E. L. Newcomb, made extensive investigation on the subject of uniformity in size of particles of powdered drugs, and standards are now provided. Numerous new tests and assays of vegetable drugs have been included, all of which assure to physicians and the general public greater uniformity and potency in medicinal agents derived from plants.

Plant Oils.—Anton Hogstad, Jr., published during the year the results of a series of extensive experiments carried out in the Medicinal and Poisonous Plant Gardens at Brookings, South Dakota, on the origin and manufacture of oil of Chenepodium. The results proved conclusively that a physiologically active oil could be produced in the locality. E. B. Fischer of the Department of Pharmacognosy of the University of Minnesota reported during the year on the yield of volatile oil from various economic plants grown in the Medicinal Plant Garden at the University of Minnesota. The results supply important data for the development of the volatile oil industry in the Northwest. F. A. Upsher Smith has continued the cultivation of *Digitalis purpurea* and the production of the drug Digitalis in Minnesota and reported assays showing very high potency.

Miscellaneous Contributions.—Many other contributions in the field of Economic Botany have been made during 1925. The following are deserving of special mention: Pollen Morphology by Maxy Alice Pope, *Botanical Gazette,* 80: 63-72, 1925. "Some effects of seasonal conditions upon the chemical composition of American Grape Juices," J. S. Caldwell, *Journal of Agriculture,* Research No. 12, June, 1925. "Oxygen supplying power of the soil as indicated by color changes in alkaline pyrogallol solutions," Lee L. Hutchins and B. E. Livingstone, *Journal of Agriculture,* Research XXV. Dixon —"On ascent of sugar in plants"— Blakiston, London. The Constitution of Cellulose, A. W. Schorger, *Industrial and Engineering Chemical Journal,* 16: 12, p. 1274. The Chemistry of the Rubber Hydrocarbon, H. L. Fisher, *Industrial and Engineering Chemical Journal,* 16: 6, p. 627. Insulin-like action of vegetable extracts. Sil. Med. Klinik, 21-169.

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DIVISION XXXIII
MEDICAL SCIENCES

PHYSIOLOGY

By Percy G. Stiles
Harvard Medical School

When the attempt is made to summarize the progress of a branch of science in any fixed period of time there is an important consideration which should be stressed. It is to this effect: that while we are compelled to choose for enumeration the studies which have an appearance of completeness, the future advances will probably be in the line of those which now seem to be tentative and fragmentary. The selection of particular investigations for mention here does not indicate that they will prove to have the most permanent value but that they are adapted for description by reason of their clean-cut and concrete character.

The Neuromuscular System.—Conspicuous for its interest among the publications of 1925 is the paper by Henderson and Haggard on the performance of a champion Yale crew. Reliable measurements of the force exerted by these eight athletes when driving their shell at twelve miles per hour show that they developed each about one-half a conventional horsepower. To sustain such activity the heart sent to the muscles a tide of blood capable of contributing to their use upwards of three liters of oxygen per minute. At the maximum the release of energy in the system reached about twenty times the rate at rest. Even the huge oxygen supply did not keep pace with the strict requirement; the muscles "went into debt for oxygen," collecting payment in the term of deep breathing that followed the exertion.

What is the fuel burned by the muscles? This is a question which has not been easy to answer. Some additional evidence has been gathered which tends, on the whole, to support the traditional teaching that carbohydrate is the favorite but not the invariable source of power. Fat may undoubtedly be used when necessary but whether it can be utilized in its original form or must be changed to carbohydrate has proved difficult to determine. A. V. Hill of Cambridge, England, believes that the preliminary transformation is essential. Furusawa has shown by trials with human subjects that a diet made as rich in fat as practicable is quite unfavorable to efficient muscular activity. Indications multiply that the level of the blood sugar has a definite relation to muscular efficiency.

The Liver.—In view of this reference to the blood sugar it is appropriate, at this point, to cite the work of Bollman, Mann, and Magath. These investigators have made it clear that the disastrous effect produced upon an animal by the removal of the liver is primarily due to the reduction of sugar concentration. The glycogen deposits of the liver are normally drawn upon to hold the sugar of the blood up to a proper standard. A late report emphasizes the distinction between the availability of the liver glycogen for this purpose and the inutility of the other glycogen store, that which is held in the muscles. The hepatic cells release their carbohydrate whenever the blood sugar is slightly subnormal;

the muscle fibers are far more tenacious of their stock.

Rhythm in the Nervous System.—For many years there has been a voluminous discussion as to the typical frequency of the impulses passing along nerve-trunks. By artificial stimulation we know that we can force the rhythm to very high values but it would be of particular interest to find out how rapidly the succession is maintained in the processes of natural living. This was the starting point of the ingenious experiments of Gasser and Newcomer in 1921. They attempted an analysis of the discharge sent by the respiratory center to the diaphragm of a dog at each inspiration. Another obvious possibility is the study of the flow from the spinal cord to a muscle which is reflexly contracted. This has been done by Forbes and Olmsted.

To understand their method one must be familiar with the following facts. The disturbance which travels along a nerve-fiber as the result of a solitary stimulus has a magnitude which does not depend on the strength of the shock producing it. After an impulse has passed, the fiber quickly, but not instantaneously, regains the power to conduct again. If it is forced to respond to a fresh stimulus before its recovery is complete it will transmit a disturbance which is conceived to be of a subnormal intensity. According to this principle the stimulation of the nerve-fibers by electric shocks in excess of a certain frequency will give rise to a series of impulses which are individually diminished in potency. Such subnormal impulses may be arrested in a partially anesthetized section of the nerve through which full-sized impulses would succeed in making their way.

At the mammalian body-temperature a nerve can conduct about 330 impulses per second and they can retain the standard magnitude of isolated impulses. A higher rhythm of stimulation cuts them down. Now Forbes and Olmsted have found that partial anesthesia of a motor nerve during the execution of a reflex act may block the transmission from the cord while not interfering with artificial excitation of a limited frequency. It is inferred that the impulses issuing from the centers have commonly a rhythm in excess of 330 per second. This estimate is considerably above those which have generally been favored.

The Volume of the Circulation.—There has been a long controversy among physiologists as to the average output of the heart and the extent to which it may vary from time to time. The quantity of blood expelled by either ventricle at a beat is known as the "stroke volume." The "minute volume" must evidently be the product of the stroke volume by the pulse rate. It has been difficult to devise a reliable method for measuring the heart's delivery and very different opinions have been held in regard to it. About three years ago Henderson appraised the data available and came to the conclusion that the normal stroke volume of the human heart is large and relatively constant. Since then his own work with Haggard has led to a decidedly different conclusion.

A new technique has been contrived for determining the quantity of blood passing through the lungs and therefore through the heart. A gas, ethyl iodide, harmless in the low concentrations employed, is inhaled by the subject. Certain physical facts concerning the power of the blood to absorb this gas at various tensions have been established. Analyses of the air breathed in and out afford a basis for calculating how much blood must have flowed through the pulmonary vessels to remove definite amounts of the gas. The method is comparatively simple and does not involve the assumptions which it has previously been necessary to make. The results point to a highly variable stroke volume.

Apparently the heart of a man who weighs 70 kilograms usually discharges rather more than 100 c.cm. of blood from each ventricle at a beat. The output per beat increases surprisingly when exercise is taken. It may be doubled. This is the conclusion which is most at variance with earlier views. It had been taught that when the pulse rate of a man beginning to use his muscles went up from an initial 75 to a maximum of 150, the stroke volume changed but little and the minute output was therefore just about doubled. If, however, the stroke volume doubles as well as the rate the minute delivery must be quadrupled. The resting value is set by Henderson and Haggard at about 7.5 liters and the maximum during exercise at 30. In some individuals the stroke volume is much larger when lying down than when standing.

The Spleen.—This rather large organ has long baffled the attempts of many workers to fix upon it a function commensurate with its size. It has come to appear probable that the chief relationship of the spleen is with the red corpuscles of the blood. In the past the action most discussed had been the possible disintegration of these cells within the spleen. Work now going on in the laboratory of Barcroft in England indicates a totally different type of action. The organ is exhibited as a reservoir of corpuscles which may be expressed from it into the circulation when the need is definite.

A preliminary report is to the effect that the spleen of the cat undergoes intense contraction after hemorrhage. The change has been made visible by the X-ray. It is so great as to transfer to the blood as much as 20 c.cm. of fluid. Barcroft believes this fluid to be quite as rich in red cells as the blood itself. The volume mentioned is large enough to be of vital consequence in many cases. Thus, the gradual loss of 60 c.cm. of blood from the body of a cat may be compensated in part by the addition of 20 c.cm. of blood, or its equivalent, from the spleen. With magnitudes of this order the splenic reserve may well save life.

Confirmation of Barcroft's conception has been obtained by observing the resistance of animals, with and without the spleen, to the fatal influence of carbon monoxide gas. This gas causes death when it has so far replaced oxygen in the arterial blood as to deprive the tissues of their essential supply. The end will, clearly, be postponed if fresh portions of hemoglobin can be introduced into the circulation. This is precisely what the spleen is now held to do. Animals deprived of the spleen and given a reasonable time to recover from the operation have succumbed to carbon monoxide decidedly sooner than normals. This is really due to the loss of the splenic resources and not to operative injury. Control experiments in which other abdominal operations have been performed serve to show that the surgical procedure does not in itself make the system more susceptible to the gas. Cutting the nerves of the spleen prevents it from functioning in such an emergency.

The Pancreatic Juice.—In the field of digestion we may note a change of emphasis in regard to the factors affecting the flow of a important secretion. Until rather recently the chief responsibility for the timely awakening of the pancreas to periodic activity was fixed upon the acid entering the duodenum from the stomach. It has been taught that the acid reacting with material in the duodenal mucosa produces a more or less specific "secretin" adapted to pass as a hormone to the pancreas and to excite its cells. It now appears that other influences than that of acid deserve to be considered and indeed to be given primacy.

We have in mind the observations of McClure and his co-workers. It is their constant experience that food rather than acid in the small intestine induces the flow of pancreatic juice. Neutral fat which requires this agent for its digestion is reported to be highly efficacious in calling it forth. Furthermore it is stated that acidity seems not to be maintained to a significant degree in the duodenum. The chyme from the stomach is promptly neutralized. Nervous control of the pancreas probably plays a larger part than was recognized a short time ago.

The Endocrine Organs.—Since the preparation of insulin was achieved a great deal of work has been devoted to the making of concentrated and stable solutions and precipitates of the various hormones. Attention may be called to the work of Collip on the parathyroid. For some time it has been known that the removal of the parathyroid tissue commonly produces tetany which may be fatal. Lately it has been noted that a characteristic of this condition is a lowering of calcium in the blood. The acute symptoms are relieved by injecting calcium salts into the circulation. The inference has been that the parathyroid exerts a regulatory influence upon the calcium content of the plasma.

Collip has obtained an active parathyroid preparation by an acid hydrolysis of the glands. The material thus secured can be used to preserve the lives of animals from which the parathyroids have been removed. This it appears to do by elevating the blood calcium from a subnormal to a normal figure. The extract can be given with benefit by the mouth but is more effective when injected under the skin. Collip has found that excessive doses of the new hormone may force the calcium definitely above the concentration which is desirable. A complex of symptoms may be developed which is clearly the result of this disturbance of the chemical balance.

Another aspect of endocrine activity is presented in a paper by Britton. The reference is to the nervous control of the discharge of insulin from the islet cells of the pancreas. It will be remembered that there is abundant evidence that the internal secretion which makes possible the normal metabolism of carbohydrate is a product of these cells. There is further testimony from histologists to the effect that the "Islands" have a liberal nerve-supply. It has, accordingly, been a matter of interest to ascertain whether the nerves in question have a demonstrable influence upon the rate of insulin discharge.

In the present state of our knowledge it is necessary to draw conclusions concerning insulin in the blood from determinations of sugar. The sugar level is very sensitive also to changes in the rate of adrenal secretion. Britton controlled this complicating factor by eliminating the adrenal medulla from nervous connections. He found that the blood sugar in animals thus prepared was remarkably constant over long periods. If, at any time, the right vagus nerve was stimulated at an accessible point upon the stomach the sugar fell decisively. The character of the change was always such as may be observed after a suitable injection of insulin. In view of many details which cannot be recounted here it may be stated that the body of evidence secured by Britton is exceedingly impressive. Nervous control of insulin release appears to be surely established.

Size and Metabolic Rate.—There is a large literature dealing with the correlation between size of body and intensity of metabolism. During the current year there have been fresh contributions to the discussion, and attention may be called to one by Wels. Tissues from different animals have been removed to appropriate media and their consumption of oxygen has been measured. The tabulated results indicate that the specimens taken from small mammals have a distinctly greater oxygen requirement than those from larger organisms. The following figures will illustrate the principle.

OXYGEN IN CUBIC MILLIMETERS PER HOUR AND PER MILLIGRAM OF DRY WEIGHT OF TISSUE

	Young Mouse	Adult Mouse	Young Rat	Adult Rat	Guinea-pig	Rabbit	Sheep
Muscle	13.4	10.6	7.5	5.7	3.5	..	..
Liver	..	10.8	..	..	4.4	4.5	3.1

It is fair to add that this suggestive gradation has not been confirmed by Terroine and Roche who have made a somewhat similar investigation.

Sympathetic Innervation of Skeletal Muscles.—From time to time the claim is renewed that the striped muscles of the body are more or less influenced through sympathetic (autonomic) connections. Many have favored the conception that while the rapid and forcible contractions are doubtless caused by the obvious and direct nerve-supply from the cord or medulla, gradual and gentle adaptive changes may be governed through the ganglia of the sympathetic chains. The histologists have described nerve-endings in skeletal muscle which may represent the terminals of such paths. The matter has been much discussed because of the operations of Hunter. This brilliant Australian surgeon, lately deceased, had reported the relief of certain conditions of contraction in paralyzed legs, following the removal of the lumbar ganglia.

Meek and Crawford have published the results of experiments on dogs which do not confirm the existence of autonomic regulation for the leg muscles. They have dissected out the lumbar ganglia and allowed the animals to recover. After a considerable interval (33 to 77 days) they have destroyed the cerebral hemispheres. When this operation is performed with careful attention to the precise limits of the injury it is well known that the animal may show what is called decerebrate rigidity. This is, in general, an exaggerated tonus of the extensors. It is, furthermore, a plastic tonus, meaning by this a condition which admits of manipulating the limbs into various positions and having them retain these postures.

If the easily recognizable plastic tonus is due to an autonomic influence it should not appear after the excision of the sympathetic ganglia. When the operation has been on one side only there should be a contrast between the reactions of the two legs after decerebration. Meek and Crawford have been unable to discover any such contrast. So far as their results are concerned there is no evidence that the destruction of sympathetic connections modifies in any respect the behavior of striped muscle. The possibility remains that different species of animals differ in this feature of their organization. Hunter and Royle derived their positive data largely from the goat and the fowl and from human patients to whom they brought benefit. Still other studies of this question may be expected.

PHARMACOLOGY

By Robert A. Hatcher

Professor at Cornell University Medical School

Significance.—Pharmacology is concerned with the actions of drugs on living tissue and is the basis of scientific therapeutics. The discovery of the effect of a rare chemical on one of the lowest forms of life may be the starting point for epoch-making advances, and a sensational discovery may be quickly forgotten because of changing conditions; hence some of the facts that are mentioned here may ultimately prove of less importance than others that are not discussed.

There is urgent need of investigation in every field of medicine, and the public should understand that scientific research is not an amusement of "highbrows" but the work of the most practical of men who appreciate its vital importance, since it touches the health of every individual. Medical progress may be likened to the slow spread of light at dawn, while the brilliant discovery may be compared to the sudden flood of light that follows an eclipse of the sun.

Insulin.—The discovery of insulin was one of the triumphs of medicine, but its initial cost and other disadvantages limited its use. Dr. John J. Abel, who has studied organ extracts for many years, and his co-workers, have purified insulin, obtaining a product several times as active as that previously used. Its chemical behavior suggests that insulin is an unstable compound of sulphur, and it seems probable that it can be standardized chemically, thereby saving at least one thousand rabbits for every lot prepared. Philip Shaffer and his associates have also greatly improved the manufacture of insulin.

Pituitary.—Pituitary (also known by various names) is valuable in child-birth, but owing to the lack of accurate means of determining the activity of its preparations fatal accidents have resulted from overdosage, and disappointment has resulted from insufficient dosage. M. I. Smith and W. T. McClosky of the Hygienic Laboratory of the United States Public Health Service recently developed a satisfactory method of standardizing these preparations, and this method will be adopted throughout the civilized world. Abel has prepared a substance from the pituitary of such extraordinary activity that it causes active contraction of certain muscles even when it is diluted with 18,750,000,000 parts of water.

Iodin and Goiter.—Simple, or nontoxic, goiter is prevalent in many parts of the world. This relatively harmless condition is often followed by the far more serious exophthalmic, or toxic, goiter, which is also known as Grave's disease. Simple goiter is relieved or prevented by small amounts of iodin or an iodid, but it is difficult to induce very large numbers of persons to take the treatment, and in Switzerland, where the disease is extremely common, the law requires that a trace of iodid be added to table salt, thus insuring its prophylactic use. Thousands of school children in various cities in the United States have been treated with an iodid, and it has been suggested that it be added to the water supply. This is too expensive, however, for general adoption since only a small percentage of the water supplied to a city is taken into the body. Iodin has been used in the Mayo Clinic and elsewhere in the treatment of the toxic form of goiter, and quite recently C. C. Sturgis and J. A. Greene in the Peter Bent Brigham Hospital of Boston reported that its use before thyroid operations had resulted in greatly lessening the loss of weight at that time.

Tetany.—The parathyroid glands were so named because of their proximity to the thyroid. Their removal in healthy animals results in a spasmodic condition known as tetany, suggesting that an active extract of the glands might prove useful in disease presenting similar symptoms. J. B. Collip, who assisted in the preparation of insulin, has prepared such an extract, which influences the amount of calcium in the blood. It gives promise of being useful in the treatment of tetany in infants and in that following injury to the parathyroids during operation for removal of the thyroid.

Salvarsan.—The unquestioned value of arsphenamine (salvarsan, "606") is marred by the fact that it sometimes causes death. Reid Hunt, of Harvard Medical School, has determined experimentally the causes of certain of these accidents and has shown how they may be avoided. Workers in the Rockefeller Institute have continued the study of various compounds of arsenic which are used in the treatment of lues and the African sleeping sickness (not the so-called sleeping sickness of Europe and the United States). It seems probable that tryparsamide (one of these arsenicals) is of especial value in the treatment of neuro-syphilis, but certain disadvantages remain to be overcome. Workers in the Hygienic Laboratory believe that those arsenicals that have high penetrative power should be given the preference over those of lower power.

Antimony and arsenic have certain actions in common and efforts are being made to determine in what conditions antimony may replace the latter. Pharmacologic tests of two selected preparations of antimony (one of which had been synthesized by Professor Abel) showed that they were less toxic than tartar emetic when injected subcutaneously in mice, and Dr. Alexander Randall used them in the treatment of granuloma inguinale. He closes a recent report with the statement that antimony is rapidly receiving attention, because of its value in the treatment of so-called tropical diseases.

Use of Diuretics.—Dropsy, or edema (an accumulation of water in the tissues) results when the kidneys fail to function properly, and the effective use of diuretics constitutes one of the problems of the treatment of cardiac disease. Novasurol (a complex substance in which mercury and a hypnotic are combined) was introduced for the treatment of lues, but it has recently attracted attention as a diuretic, especially in dropsy due to cardiac disease. It has the advantage over calomel, which has long been used as a diuretic, of being soluble in water, hence it may be injected intramuscularly or intravenously. Urea is a normal constituent of the urine, and more than thirty years ago, it was used as a diuretic, but it was supposed that the symptom known as uremia was due to the inability of the kidney to excrete urea, and it dropped out of use as a diuretic. During the present year, J. H. Crawford and J. F. McIntosh used it in the Hospital of the Rockefeller Institute for Medical Research and reported that it is useful in cases of heart disease with edema in which treatment of the heart itself failed to afford relief.

Quinin and Quinidin.—The use of quinin and quinidin illustrates what has been stated somewhat differently in the first paragraph of this article, in that the present methods of using them are not dependent upon any great discovery of recent years, but upon the correlation of the results of studies in widely separated fields. Quinin is now used far more effectively in the treatment of malaria, and while quinidin does not cure heart disease, we know more of its limitations than we did, and relatively fewer accidents result from its use.

Soma Weiss, in Bellevue Hospital, found that suitable doses of physostigmin (also called eserin) relieve the distressing gaseous distention of the bowels so often encountered after abdominal operation. This drug had been used on theoretical grounds for this purpose, but the doses employed were insufficient and frequent disappointment had resulted in its falling into disuse.

It was observed that one part of ethylene in a million of air caused certain flowers to close, and Arno Luckhardt studied the actions of the gas on animals and man. These investigations showed that it is a general anesthetic of relatively low toxicity and it is coming into extensive use. It has the disadvantage of forming an explosive mixture with air.

Hookworm.—The prevalence of hookworm disease in various parts of the world has led to the treatment of whole populations en masse, and many thousands of cures have been effected by the use of oil of chenopodium (American wormseed), and the far less expensive carbon tetrachlorid.

Recent experience makes it doubtful whether chaulmoogra oil, or its esters, actually cure leprosy or only cause marked improvement. The oil is obtained from the seed of a tree which grows in the jungles of Burma and adjacent regions and the Government of the United States is making great efforts to increase the supply.

Extraordinary efforts are made to discover antiseptics that will destroy organisms of disease in the human body. The oral administration of hexyl-resorcinol to man causes the urine to become bactericidal; hence it is hoped that the drug will prove useful in chronic infections of the bladder. Churchman and others are investigating certain dyes intended for use as internal antiseptics and there is reason to believe that distinct advances will be made in the near future.

Cancer and Radium.—The value of radium in the treatment of cancer has been amply demonstrated and studies are being made to determine the best methods of employing it. Fortunately, the extremely limited world supply is being rapidly augmented.

Dr. Emil Mayer, chairman of a special committee of the Council on Pharmacy and Chemistry of the American Medical Association, collected detailed reports of forty-three deaths following the use of cocain and other local anesthetics. The committee studied these reports and concluded that local anesthesia can be induced safely according to the methods formulated.

Poisoning with corrosive sublimate, by accident or design, occurs frequently. It causes intense suffering and death or prolonged invalidism. The search for an antidote continues actively, but there is no satisfactory method of treating the distressing symptoms after the poison enters the circulation. Sodium thiosulphate (commonly called hyposulphite) is being used extensively as an antidote in poisoning with this and other metals, but with far from uniform success.

Anemia and Iron.—The public pays a considerable sum every year for so-called tonics, and it has long been thought that medicinal iron is of value in certain forms of simple anemia. C. S. Spenser and H. N. Ets rendered rats anemic by hemorrhage and found that they recovered as rapidly without medicinal iron as with it, since the common foods contain an abundance of iron for ordinary demands. Anemia is not usually due to any deficiency of iron in the food, but to an inability of the patient to utilize it. Green vegetables and red meats contain all the iron that is required.

Digitalis.—Digitalis is pre-eminent among the drugs used in heart disease, but its therapeutic use presents many problems concerning which there is a very great diversity of opinion.

Professor Cushny has studied the enormous literature of the subject and his book of more than three hundred pages, just published, treats of the action and uses of digitalis and other drugs of the group. Cushny has performed a great service to medicine and to mankind in clarifying many questions concerning these drugs. A perusal of this book enables one to appreciate the force of the statement that medical progress is due mainly to the slow accumulation of knowledge based on experimental evidence.

Pharmacopœia.—The tenth decennial revision of the United States Pharmacopœia has been completed after more than five years of work, and it became official (legal standard) on January 1, 1926. It represents a prodigious amount of exacting labor, and much credit is due Professor E. Fullerton Cook, the chairman of the Committee of Revision, for the success of the work. It represents the best in the materia medica and there are very few, if any, non-proprietary drugs, which are essential in the treatment of the sick, that are not described. Many useless or superfluous drugs that were formerly included have been dropped, and probably it is the best national pharmacopœia ever issued.

Abraham Flexner, who has studied intensively the problems of medical education in Europe and the United States, says (Medical Education, The Macmillan Company, 1925), "Perhaps the most efficient and stimulating teaching of pharmacology is found in the small number of high-grade schools in America." The significance of this statement is appreciated by those who understand that continued therapeutic progress is dependent upon pharmacologic development.

PATHOLOGY

By A. James Miller, M.D.
University of Nebraska Medical School

Hemochromatosis. — The tissue changes and the method of their production in hemochromatosis are described by Mallory.

Hemoglobin is broken down in such a way that hemofuscin, a yellow pigment, is formed and stored in the liver. It is found in the parenchymal cells and in the endothelium lining the sinusoids first. In the course of months or years the hemofuscin is changed to hemosiderin. After the liver cells are filled to a certain degree they die and regeneration follows. Later the connective tissue, plain muscle of the blood-vessels and bile duct epithelium take up the hemofuscin and here it is also but very slowly changed to hemosiderin. Necrosis, regeneration and sclerosis follow the deposit of pigment.

When the liver is saturated the

pancreas, cortex of adrenals, lymphnodes, heart, thyroid, skin and mucosa of the stomach take up the pigment. The pancreas may go through tissue changes similar to those in the liver and diabetes mellitus result. Destruction of the adrenal cortex may lead to an increase of normal pigment, or melanin.

A group of 19 cases are reported. Of these 9 had used alcohol to excess, 6 had been exposed to copper for years by their occupations, 1 had used a copper kettle regularly for boiling water. In three instances the histories are negative for exposure to copper. The required time of exposure is years; the most definite history is that of a man who turned copper and brass for 14 years.

Analysis of a group of distilled liquors showed the presence of copper from a trace to 185 mg. per liter. The solvent action of organic acids on the copper worm of the condenser or other copper containers is believed to be the source of the copper. Fine copper shaken up with 1 per cent. solutions of nitric, hydrochloric, acetic, tartaric, lactic and citric acids for 15 minutes was dissolved to a perceptible degree.

The disease was reproduced in laboratory animals by giving them copper. The change of hemoglobin to hemofuscin and then to hemosiderin was followed. These changes may be produced in the body in other ways so copper is only one of the things that brings it about. The very high instance of exposure to copper in the histories of the reported cases points quite definitely to copper poisoning as the etiology, especially when confirmed by the reproduction of the disease in laboratory animals.

Scurvy. — The structural changes characteristic of the scorbutic state are described by Wolbach. Guineapigs deprived of the anti-scorbutic factor are the subject of the investigation.

The earliest effect of the scorbutic state is found in the incisor teeth and is evidenced by defective dentine formation and changes in size, arrangement and staining reaction of the odontoblasts. In 6 or 7 days there is separation of the dentine forming cells from the dentine leaving a space which is presumably filled with fluid. Within 48 hours after giving the antiscorbutic factor there is formation of dentine filling this space.

Bone formation ceases immediately on withdrawal of the anti-scorbutic factor but osteoblasts continue to proliferate. A single dose of this factor results in the prompt appearance of bone matrix between the cells. There is no repair of bone incisions in the scorbutic state. If, however, the anti-scorbutic factor is given immediately after a bone incision in a scorbutic animal new bone formation is very prompt.

Fibroblasts proliferate in the scorbutic state but there is very little intercellular substance formed. New blood vessel formation is also retarded in granulation tissue.

The scorbutic state is characterized by the inability of the supportive tissues to produce intercellular substances. This is most marked in the tissues which have calcified products, as bone and dentine, applies less to collagenous tissue and cartilage and by inference to other intercellular substances. The hypothesis that intercellular substances are changed from a liquid to a jell state that the anti-scorbutic factor brings about this jelling, or setting, is entertained.

Fat Soluble A Deficiency.—A description of the tissue changes in animals fed a fat-soluble A (vitamin) deficiency diet with mention of the report of one fatal case, has also been made by Wolbach.

The changes effect epithelial tissues and consist of the "Substitution of stratified keratinizing epithelium for normal epithelium in various parts of the respiratory tract, alimentary tract, eyes, paraocular glands and genito-urinary tract." The replacement epithelium is common in type for all locations. The change occurs by proliferation of small groups of cells arising from the original epithelium and not by a general transformation. Changes are absent in the stomach, intestines, liver and kidney parenchyma.

Growth activity of cells is augmented. The mitochondrial apparatus is not primarily changed.

NON-TUBERCULOUS GRANULOMATOUS LYMPHADENITIS

Hansmann calls attention to a disease recently recognized in this country but commonly recognized in France.

Clinically it is manifested by a small cutaneous lesion which is wartlike, vesicular, ulcerated or indurated. These are probably different stages of the same process. It occurs on any part of the integument and is common on the genitalia. Enlargement of the regional lymph-glands soon follows during which time there may be general symptoms including fever, leukocytosis, nausea and vomiting. After about two weeks the fever subsides and the process advances slowly. The glands may adhere to the skin, break down and discharge through sinuses. The pus is sticky at first but loses this character after secondary infection. The glands are walled off by granulation tissue and are not tender or hot until secondarily infected.

The pathology of the primary lesion consists of ulceration, hyperplasia of the epithelium, induration and leukocytic infiltration accompanied by a few giant cells. It heals after a few weeks.

The pathology of the lymph-nodes so closely resembles that of tuberculosis that it is very difficult to differentiate. The chief difference is that there is more suppuration and tubercle bacilli are not found.

The etiology is not known. Animal inoculations are without positive results.

Good recovery follows surgical excision.

Pellagra.—A study of twelve uncomplicated cases of pellagra has been made by Denton, who found the important lesions in the skin, in the mucosa of the mouth and in the large intestine.

In the skin there is rarefaction of the superficial part of the corium and destruction of the collagenous binding material between the dermis and epidermis. Shallow vesicles result with no evidence of positive pressure. Telangectases develop in the corium by distention and growth of preëxisting capillary and precapillary vessels.

The lesions in the mouth are similar but may become necrotic and secondarily infected. Their color is due to the telangectases.

Colitis is very common and may give rise to no noteworthy symptoms unless the sigmoid and rectum are involved. Here the epithelium is intact save for microscopic areas of necrosis covered by fibrinous exudate. Numerous cysts are formed by dilated glands in which the epithelium reverts to a more simplified type. Varying grades of acute inflammatory reaction are always present. The epithelial cells change to a wide variety of sizes and shapes with mitoses and irregular cell division. The vessels are dilated similar to those in the skin. The changes are confined to the epithelial tissues without extension to the deeper tissues or viscera.

There is no direct insight into the etiology. The similarity of the lesions to those produced by the X-ray is mentioned.

BACTERIOLOGY

By William H. Park, M.D.
Department of Health, New York

New Discoveries.—During the past year a number of minor additions have been made to our knowledge in Bacteriology, but those that were important require further work for their corroboration and those that were less important hardly deserve mention among outstanding features. In this article, therefore, the subjects have been limited to three, Tuberculosis, Cancer and Scarlet Fever.

In Tuberculosis the discovery of the value of the vaccine treatment is not new but the report on its use in children is new. The discovery of Dr. Gye's in tumors is absolutely new. This work has not been corroborated as yet but it is done so carefully that it deserves to be considered, although it will take years to determine the exact value of the discoveries.

In Scarlet fever, like Tuberculosis, the discoveries are not altogether new. Like Tuberculosis, the present success is based upon years of study and it is also fair to mention that a well-trained bacteriologist in Italy, —Carinia.—believes he has discovered a different organism than the streptococcus which produces immunity. Dr. Carinia, and Dr. Turnicliffe also believe they have discovered a tiny streptococcus which they believe to be the cause of measles. It will take another year at least to determine the value of their findings.

Tuberculosis.—For many years Professor Calmette has been attempting to obtain a safe and reliable vaccine against human tuberculosis.

Ever since Koch in 1890 published his work on tuberculin this problem has been a subject of investigation. Behring prepared a vaccine for calves which was quite successful, but had important drawbacks. Calmette uses for his vaccine a strain of tubercle bacilli obtained from cattle and which after long years of cultivation upon media containing bile has become so attenuated that it is not able to infect rabbits, calves or monkeys. He found that after vaccination the animals were resistant to infection with tuberculosis for a year or more and that each revaccination would give another year.

On June 16 he published the first results obtained from the vaccination of human infants. These infants were born of tuberculous parents, they therefore were in great danger of infection and early death. They were vaccinated during the first days of life.

These vaccinations were begun in 1922 and have been continued in ever increasing numbers until the present time. Up to June 1, 1925, Professor Calmette has been able to trace 423 of these infants who were vaccinated at least six months previously, and none of them have died of a tubercular infection.

In view of the usually heavy death rate from tuberculosis in infants, born of tuberculous parents, these results are strikingly favorable.

Cancer and Malignant Tumors.—Dr. Gye gave an address at the British Medical Association in July on his work on the etiology of malignant tumors. Dr. Payton Rous of the Rockefeller Institute for Infectious Diseases reported in 1911 that if a certain variety of chicken sarcoma was removed, ground up in a mortar with sand, diluted with an adequate amount of salt solution and filtered first through paper pulp to take out the coarse particles and then through a Chamberland filter that this filtrate though free of any cells which were visible under the microscope was able to produce a sarcoma if injected into other chickens. Subsequently two other varieties of sarcoma were discovered, the filtrate of which had the same power as that from the Rous sarcoma, originating tumors imitating in their nature the tumors from which the filtrate was made.

Dr. Gye's results indicated that the filtrate contained a living virus and a specific substance derived from the tumor tissue. The living virus after passing through successive cultures was still potent so that it seemed that growth had certainly taken place. Each of these alone was incapable of giving rise to a malignant growth but combined they were able to produce it. These results were obtained not only with tumors from birds but also from mammals. The discovery that the virus alone was not able to start the development of a tumor without the aid of this specific substance obtained from the tumor tissue and that this specific cellular material determines the nature of the tumor is an original idea of great interest.

This discovery of Gye's is a step forward which will stimulate many other workers to try to corroborate it and to extend it. There is no prospect that this discovery will be of immediate help in the treatment of malignant tumors, but experiments are already being carried on in London on the possibility of vaccinating man so as to produce an immunity to the disease.

Scarlet Fever.—More than twenty years ago Moser developed a serum which had marked therapeutic results with scarlet fever, and Gabrischewsky developed a vaccine made of the broth in which the streptococcus obtained from scarlet fever cases had grown and of the dead streptococci themselves. This was used in tens of thousands of Russian children and apparently gave protection against scarlet fever. Outside of Austria and Russia the serum and vaccine was not appreciated.

The recent discovery of the Dicks that the streptococcus from scarlet fever throats made a toxin that when injected into the skin, just as the diphtheria toxin is done in the Schick test, of a non-immune person would develop a slight inflammatory reaction and that the same toxin injected into the skin of an immune child would not develop a reaction, made it possible to do a number of important things. The presence of natural or acquired immunity could be determined, the antitoxic potency of serum could be estimated and the development of immunity as well as its duration in children could be determined.

At the same time as the Dicks, Dochez developed a highly antitoxic scarlet fever serum. The potency of the serum was determined by the Schultz-Charlton blanching test. If 1 c.c. of the serum from a convalescent case of scarlet fever is injected into the skin of an early case of scarlet fever the redness disappears from the skin in the area injected.

During the year 1925 papers have been published showing the striking results in early cases of a sufficient amount of antiscarlatinal serum and the effectiveness of the vaccine has also been demonstrated. The immunization is generally complete in two weeks and lasts in the majority of persons for at least a year.

The serum and vaccine bid fair to be as useful as diphtheria antitoxin and toxin-antitoxin. The latter is being very widely used in the United States and the results have been very successful. As already stated, a number of additions have been made to our knowledge of bacteriology and immunology during the year but they are mostly either not of general interest or lack confirmation.

MEDICINE

By F. Lowell Dunn

Professor, University of Nebraska Medical School

Fields of Progress.—The year 1925 appears more in the light of an extension of principles previously enunciated rather than one of new discoveries. This makes a selection of material difficult, and somewhat individualistic. Perhaps edema, insulin, pernicious anemia, light therapy, the stethophone, liver function, and scarlet fever are the more important fields of progress. These have been selected. Recent work on cancer and the visualization of the gall-bladder by the use of tetraiodeophenolphthalein and similar compounds will be considered in the section on surgery.

Eminent Men.—The deaths of Sir James Mackenzie and Sir Clifford Albutt cannot be passed over lightly. Mackenzie, through his careful observations of heart abnormalities while a practitioner, did fundamental work in heart irregularities and prognosis of heart conditions. His painstaking records on patients over periods of several decades and longer, combined with his critical judgment, enabled him largely to reshape the knowledge of cardiac disorders and to place it on a rigid basis. Mindful of the value of such study over periods of years he pointed out repeatedly that the family doctor was pre-eminently fitted to study the course of disease and that all important progress need not come from the laboratory or the clinic.

Sir Clifford Albutt died at the age of 88 years. Aside from the large system of medicine which he edited, his works on arterial disease, hypertension and angina pectoris are considered classical contributions. It is of interest that he introduced the short clinical thermometer into medicine. Its usage today is so routine that we seldom think of the significance of such a step. The above is sufficient to indicate that two pioneers have passed. Professor August von Wassermann died at the age of 59. The Wassermann reaction, a complement fixation test in syphilis, is widely known among the laity and of great value in diagnosis because of the manifold variations in syphilis.

In literature the fascinating biography of Sir William Osler by Harvey Cushing will appeal to all who are interested in biography or in American medicine. The profusion of letters and anecdotes gathered reflects the thoughtful and painstaking care of its author and makes the two volumes a permanent contribution.

Edema.—The work of W. B. McClure and C. A. Aldrich on the time required for the disappearance of intradermally injected salt solution (J. A. M. A. 81: 1923: 293), together with later study of a case of generalized edema by this method seem to show conclusively that edema is a tissue-thirst phenomenon. In cases with edema the injected salt solution disappears rapidly whereas the normal disappearance time on the leg for 0.2 c.c. is about forty-five minutes. Brown and Rowntree (Arch. Int. Med., 35: 1925: 129) in a study of the volume and composition of the blood and the changes incident to diuresis in cases with edema come to the same conclusion. This is essentially the older viewpoint of M. H. Fischer (Edema and Nephritis) and is in close alignment with the development of colloidal chemistry with its work on the swelling of proteins, effect of electrolytes, and influence of semipermeable membranes. The preliminary report of G. M. Curtis shows that the action of certain diuretics (euphyllin) is on the tissues and not on the kidneys alone (Berliner Klin. Wochenschrift, 1925).

Novasural.—A double salt of sodium mercurichlorphenyl oxycetate with diethylbarbituric acid (barbital), is a new diuretic favorably commented on by Rowntree, Keith, and associates in the treatment of ascites in hepatic disease and also in nephritis with edema (J. A. M. A., 1925). Studies of the blood failed to show any constant changes in the concentration of hemoglobin, serum, protein or chlorine coincident with the loss of fluid. The loss of fluid is usually prompt and striking. There are no data on the permanency of such treatment.

These authors suggest that their work is further evidence that changes of a physicochemical character; probably affecting the cellular colloids, are responsible for the edema. Linking up edema with a field of colloids in this manner does not in any sense simplify our understanding of the problem; but by shifting the attention to the tissues will lead us away from the mechanical explanations of edema, which have not proved of great use.

Insulin.—It is premature to form final opinions as to whether the use of insulin will or will not completely neutralize the disease, diabetes mellitus. Joslin, Root, and White (J. A. M. A., 85: 1925: 420) state that diabetic children under insulin management may be underweight for their age but have normal weight for their height. Development seems to go towards a normal maturity. This is in great contrast to the hopeless outlook of pre-insulin days. Fitz and Murphy (Arch. Int. Med., 1925) conclude that in adults taking insulin and under control as to glycosuria, the muscular efficiency is approximately normal, provided sufficient calories are given.

However, the intermittent injection of insulin would not *a priori* appear to be as effective as the flexible insulin control of the non-diabetic. At present the operative hazard in diabetics in properly trained hands is scarcely greater than in the non-diabetic. Because of the potential instability of a diabetic Jones and Root point out that all infections requiring surgery should be treated early. As to the possibility of curing diabetes by the continued use of insulin over long periods of time there is no reliable evidence. By resting the islet tissue of the pancreas by the injection of insulin very definite increases in the ability to burn carbohydrates are shown, but the final tolerance established is below that of the nondiabetic individual.

The mechanism of action of insulin is not known. Of interest, however, is the report of Abel, Geiling, Alles, and Raymond (*Science*, Aug. 21, 1925) that the potency of an insulin preparation runs parallel to its sulphur content. They also observed that alkalinizing an insulin preparation destroyed its activity, and that on acidifying again the preparation gave off hydrogen sulphide. This would indicate that the activity of insulin depends in part on a labile sulphur linkage. This work looks very promising. There is much work reported on the formation of intermediate glucose compounds due to the action of insulin. These are supposed to be more active forms. These compounds are in such small proportions, however, that the analytic methods have large sources of error.

Pernicious Anemia.—Kahn and Torrey (*Proc. Soc. Exp. Biol. and Med.*, 22: 1925: 8) have repeated the work of C. A. Herter reported in 1906 on the presence of Bacillus Welchii in the stools of cases of pernicious anemia; and the effect of injecting the toxins from cultures into animals. They noted constant presence of these bacilli in unusually large numbers in 33 cases, and produced anemia in monkeys resembling markedly that of pernicious anemia. They also noted some of the usual clinical signs in the monkeys such as desquamation of the tongue and nervous disorders of mild degree. The clinical picture of pernicious anemia is striking in its uniformity and baffling in its etiology. Many organisms have been suggested previously. However, the viewpoint that the disease is due to a hemolytic toxin is widespread and the lack of free hydrochloric acid in the stomach contents has led many to believe that the source of the toxin is in the intestinal tract.

Light Therapy.—The significance of radiations in the visible and ultra-violet regions in metabolism and disease is rapidly being realized. The antirachitic effect of sunlight is well known. Hess and his associates have recently shown that certain substances (phytosterol and cholesterol) became antirachitic after being exposed to ultra-violet radiations. Then also Leonard Hill, Colebrook and Eidinow (*Brit. J. Exp. Path.* 5: 1924: 54) have shown that radiation of blood increases its bactericidal activity when returned to the blood stream. There is much evidence that by absorption of radiation active molecules may be formed which carry on beneficial processes in the organism. Many reactions in chemistry at the present time are believed to be due to the absorption of radiation and not due primarily to the inherent energy of the reacting substances. Such reactions have been shown to be accelerated markedly by using monochromatic radiation of certain wavelengths. The use of monochromatic radiation in the study of biologic processes has just begun. Such work will teach us much about the energy relations of these processes and also concerning the selective destruction of malignant tissues.

Stethophone.—This is a vacuum tube amplifier devised for classroom demonstration and for study of the sounds heard by the stethoscope. Briefly it consists of an electromagnetic transmitter in contrast to the usual carbon grain type, a three stage amplifier, a selected group of electric filters and a multiplicity of output receivers for observers. (H. A. Frederick and H. F. Lodge, *Bell System Technical Journal*, 3: 1924: 531.) The power amplification of the instrument is estimated at about one hundred million times. It is built into a substantial cabinet on wheels resembling a tea-wagon, permitting easy transportation. The electric filters are combinations of inductance and capacity which function to cut out various frequencies. They are variously described as low-pass, *i.e.*, passing only low frequencies, high-pass, and band-pass. By the use of trunk lines and jacks an entire classroom may be fitted up so that the instructor and all students may hear the heart sounds at the same instant. R. C. Cabot and H. F. Dodge (*J. A. M. A.*, 84: 1925: 1793) have done preliminary work on the frequencies of the sounds heard in the chest. It is observed that most of the sounds of clinical interest are below 1,000 cycles per second. Of interest is the complexity of the sounds heard in physical diagnosis. By varying the combinations of filters the composition of these sounds may be analyzed. Such work is being done. By connecting to a suitable galvanometer the vibrations may be photographed, or if desired phonograph records may be made so that permanent auditory records may be kept. In the delivery room by using a loudspeaker the fetal heart tones may be heard throughout birth. This should be of value in difficult deliveries, for by its use the condition of the child may be followed more easily than at present. The future of this instrument is problematic but it is not unreasonable to expect that it will assume a rôle similar to that of the electrocardiograph in heart disease.

Liver Function.—Although various tests for liver function have been described for several decades and longer, their clinical use has been very rare until recently. Within the last few years, however, extensive work has been done in order to determine their value. The work at the Mayo Clinic, Rochester, Minn., is of particular value with comparative tests in experimental animals and in the clinic. The Van den Bergh test for the presence of bile pigments in the bloodstream and the excretion of the dye phenoltetrachlorphthalein by the liver are proving of definite value. The former enables a quantitative estimation of bile pigment and also permits detection of excess bile pigment in the blood when it is not clinically obvious. The dye test, which is based on the rate of disappearance of the dye from the bloodstream after being injected intravenously, will often detect damage in the absence of clinical signs of its damage. According to these authors retention as shown by the dye almost always means liver damage, but the absence of retention does not rule out liver damage. The liver is the largest organ in the body and there is much evidence that it subserves numerous functions. The above tests are based on only a few of these functions. Tests based on the relation of the liver to carbohydrate and protein metabolism do not appear to be clinically useful, although they give fairly consistent data in the experimental animal. It is problematic whether any single test will be developed that will give an index of liver function. Possibly we shall be compelled to test out various functions of the liver in order to gain a comprehensive knowledge of its injury.

F. C. Mann has recently summarized his extensive work on the surgical removal of the liver in various species of animals. While the exact evaluation of results depending on the removal of entire organs is difficult, Mann has shown a definite regulatory mechanism for carbohydrate by the liver. The blood sugar falls progressively with the characteristic symptoms seen with excess doses of insulin. These are counteracted by giving glucose. In his work urea formation did not occur after the liver was removed, indicating that the protein breakdown products, the amino acids, lost the amino group through the action of the liver. Bile pigments were formed even though the liver was absent. These are important and much debated questions and the decisive character of Mann's experiments is needed.

Scarlet Fever.—The work of G. F. Dick and G. H. Dick has cleared up the question of etiology of this disease (*J. A. M. A.*, 81: 1923: 1166). The disease has been produced experimentally in man and it has been shown that a streptococcus is the agent. The possibility of a filterable virus seems excluded. The demonstration that a true toxin is produced similar to that in diphtheria has resulted in the preparation of a concentrated scarlet fever antitoxin (*J. A. M. A.*, Mar. 14, 1925). Non-concentrated antitoxins have been used previously but serum reactions are troublesome. The Dicks in Chicago have made comparative tests in

56 cases using 35 as controls and giving 21 antitoxin. The basis of selection was to give the more severe cases antitoxin. No deaths occurred, but it is significant that in the control series, 8.5 per cent. showed postscarlatinal nephritis, 14.2 per cent. otitis media, 8.5 per cent. mastoiditis, and 2 per cent. showed severe cervical adenitis, while in the more severe cases the only complication was otitis media in one (4.7 per cent.). These were cases that were given antitoxin on the first day of the rash. In a second group of cases which were classed as severe there were 20 per cent. deaths in the 15 controls and 3.4 per cent. in the 29 antitoxin cases, *i.e.*, one death which was due to a neglected mastoid infection. The best results are obtained when the antitoxin is given in one dose in the early stages of the disease. If enough has been given the rash will show definite fading within 24 hours, the course of the disease will be shortened, and with the reduction in toxemia the complication will be more easily recognized. Park reports similar results (*J. A. M. A.*, 85: 1925: 1180). A dosage of 2,000 to 10,000 units, he states, will usually be sufficient. It would seem that another disease is under control.

SURGERY

By Herbert H. Davis

Professor at University of Nebraska Medical School

Preoperative Treatment. — Considerable progress is constantly being made in reducing surgical mortality and morbidity. Preoperative preparation of the patient saves many lives and many articles are being written on this subject. Hemorrhage following operation on jaundiced patients is reduced by giving calcium preoperatively. The exophthalmic goiter case is greatly improved by giving iodine before operation. Cases of septicemia are often greatly benefited by giving of mercurochrome intravenously. An intestinal obstruction toxemia is improved by giving chlorids and hydrochloric acid. Insulin makes the diabetic a better risk. Kidney function tests and blood chemistry enable us to find out more about the general condition. Therefore fewer and fewer unexpected complications are arising.

Cancer.—The cancer problem is being very diligently worked on. Drs. Gye and Barnard of Edinburgh, Scotland, have cultivated a filterable virus which they claim to be the cause of cancer. There has been a great deal of premature and unfortunate newspaper publicity on this work. Dr. George A. Soper, the Managing Director of the American Society for the Control of Cancer, went to Europe to investigate the research. He states that not all experimental workers there were convinced that the whole of this work would be corroborated. Nobody thought that the entire causation of cancer had been explained. Dr. Gye, himself, while expressing confidence in his results, did not claim to have unraveled the whole problem and wished it understood that his results, even if fully confirmed, by no means indicated how cancer could be cured.

Carcinoma of the Esophagus.—Being a relatively slow growth in this location, carcinoma of the esophagus up to the present time has been practically 100 per cent. fatal. It very often gives no signs early and therefore becomes rather advanced before the patient seeks medical aid. The greatest difficulty in treatment, however, is the inaccessibility. X-ray and radium have been very unsatisfactory in this location and really only a palliative measure. In January was published a symposium on surgery of the esophagus. Dr. Franz Torek presented a case of cure of carcinoma of the esophagus by surgery. This woman, who is now 78 years old and enjoying very good health with no signs of recurrence, was operated by Dr. Torek in June, 1913.

Dr. Carl Eggers reports a case operated by Dr. Torek's technic, who is well and healthy about two months following operation. Of course, it is too early to tell whether this will be a permanent cure or not. Both of these cases had the diagnosis definitely proved microscopically.

After a primary gastrostomy the patient's physical condition was improved by feeding through the tube into the stomach. At a second operation a large incision was made almost the entire extent of the left seventh intercostal space and continued upward in the back, cutting through the seventh, sixth, fifth, and fourth ribs. As the pleura was then opened the length of the above mentioned incision, positive pressure anæsthesia was used. The esophagus was tied in two places below the tumor and cut off between the ligatures. The lower stump was inverted. Then practically the entire length of the thoracic esophagus was loosened. An incision over the left sternocleidomastoid muscle of the neck was made extending down to the upper end of this freed esophagus. It was then pulled through this opening so as to lie on the anterior chest wall. The tumor mass at the lower portion of the esophagus was then cut off and a tunnel made through the subcutaneous tissue for the remaining portion. The large incision and the incision in the neck were then closed. This left the patient with an opening on the chest wall at the lower end of the esophagus. By a rubber tube connecting this with the gastrostomy tube the patient was able to eat in a normal manner.

Lilienthal in 1921 did an extrapleural resection and plastic operation for carcinoma of the thoracic esophagus. His case was dismissed from the hospital in good condition but died several months later of recurrence.

At Lenox Hill Hospital in New York twenty-six such operations had been done with two recoveries. However, with more experience and earlier diagnosis this should be improved upon. This mortality is very high but without this operation the mortality is practically 100 per cent. It should be left to the patient whether he wishes to take the chance.

Dr. Duff S. Allen reports considerable experimental work on reconstruction of the esophagus. Two stout silk ligatures are placed around the esophagus at the ends of the section which is to be removed and a cuff of fascia lata is placed around this. The ends of the untied ligature are brought through this fascia. After healing has taken place the ligatures are tied very tightly and entirely buried, by suturing other tissue over them. This causes the portion of the esophagus to slough away leaving the fascia intact. The danger of this is stenosis following the operation.

Cholecystography. — Graham and Cole in 1924 brought forward a method for Röntgenographic visualization of the gallbladder following intravenous injection of the sodium salt of phenoltetrabromphthalein. This substance is secreted through the bile by the liver.

This year Whitaker and Milliken have improved the technic by using sodium tetraiodophenolphthalein. This is about twice as opaque to X-rays as tetrabromphenolphthalein. Elements are opaque to X-ray approximately in proportion to their atomic weights. The atomic weight of bromine is 80 while that of iodine is 127. The toxicity of the two drugs is practically the same. Therefore a smaller dose of the tetraiodophenolphthalein is used. This gives a greater margin of safety.

It has recently been found that sodium tetraiodophenolphthalein given by mouth may be absorbed from the intestine and give the gallbladder picture. It is easier to give this way, the danger of injecting a little into the tissues, which causes a slough, is avoided, and reactions are lessened.

If a clear-cut picture of the gallbladder of normal shape is shown it indicates a normal gallbladder; if the picture shows no shadow there is probably a pathological gallbladder. Failure to show a shadow may be due to obstruction to the cystic duct, loss of the concentrating function of the gallbladder, or to very advanced liver disease so that the drug is not secreted into the bile.

Several thousands of patients have been examined by this method and no deaths reported. Dr. Graham reports 550 cases. Given by mouth it is necessary to coat the material with something that will pass through the stomach unaltered. If the acid of the stomach is allowed to act on the substance, the soluble sodium salt is converted into the insoluble free acid which will, therefore, not be absorbed. For this purpose various capsules and tablets have been devised.

Dr. Graham states that the intravenous method has given accurate results in 93 per cent. of the cases and the oral method in 70 per cent. However, if either method shows a gallbladder shadow, the gallbladder is probably normal. If the oral method fails to show a shadow it is advisable to check up the result by the intravenous method. If still no shadow is seen (allowing for 7 per cent. error) the gallbladder is diseased.

Tannic Acid in the Treatment of Burns.—There is considerable evidence that the constitutional reaction in burns is due to a toxemia. The causative substance is probably the product of protein autolysis in the burned tissue.

Tannic acid has the property of precipitating protein. Dr. Davidson, on the assumption that by precipitating protein it could not be absorbed, began using tannic acid in the treatment of burns. He reports 25 cases with much better results than have been accomplished by other methods. Two of the cases were fatal. One of them he thinks would probably have lived had he not applied boric acid solution on the sixth day of treatment. The case had been doing nicely with the tannic acid treatment and became worse soon after the boric acid solution was used. Other cases have shown that boric acid solution is detrimental. The second fatal case lived twenty-two days, but finally died of exhaustion and secondary infection of the deeply burned tissues, at a time when the non-protein nitrogen of the blood was normal and other evidence of the so-called burn toxemia was absent.

As soon as a patient is seen he is given a relatively large dose of morphine sulphate hypodermically to alleviate the intense pain. The burned area is then covered with dry sterile gauze pads which are held in place by sterile gauze bandages. This dressing is then soaked with 2.5 per cent. or 5 per cent. aqueous solution of tannic acid. It is essential that the tannic acid solution be made up fresh just before use because it deteriorates upon standing with the formation of the far less astringent gallic acid. Small sections of the dressing have been opened for inspection at the end of 12, 18 and 24 hours. As soon as the surface has assumed a light brown color all dressings are removed. Pain and trauma are avoided by wetting the gauze with fresh tannic acid solution shortly before it is removed. The wound is thereafter left exposed to the air but is carefully protected from mechanical injury, chilling, and bacterial invasions by a suitable cradle draped with sterile linen. In the more serious cases artificial heat is supplied by placing ordinary electric light bulbs in the cradle. About the face a 5 per cent. tannic acid ointment is used. This is not so satisfactory as the solution. It is important to keep up the fluid balance of the body by forcing fluids. Blood transfusions are occasionally necessary.

His conclusions are as follows: (1.) The preliminary treatment of burns with tannic acid compresses followed by exposure to air lessens toxemia. (2.) After coagulation of the devitalized tissue with tannic acid, the application of a wet boric acid dressing apparently causes a return of toxic symptoms. (3.) Tannic acid as an initial dressing on a burn is analgesic. (4.) The subsequent use of the open air method causes minimal trauma and promotes general comfort. (5.) The local astringent effect prevents the loss of body fluid. (6.) Secondary infection is markedly limited by the absence of a favorable nidus for bacterial growth. (7.) Scar tissue formation has been less marked than that observed after treatment by other methods. (8.) The protective layer of coagulated protein forms a scaffold for the growth of the young epithelial cells over the denuded surface.

Lymphaticostomy for Peritonitis.—Dr. W. A. Costain of the University of Toronto in 1922 first published results of experimental work on the treatment of peritonitis by drainage of the thoracic duct. He concluded that in diffuse septic peritonitis death travels through the thoracic duct and drainage of this duct would be valuable aid in the treatment. About that time he treated the thoracic duct in a child for pneumococcus peritonitis with recovery.

The results of several important investigations have been published this year in regard to this treatment. Lehman and Copher experimentally found this did not help peritonitis but thought it might be slightly favorable for toxemia of intestinal obstruction. L. D. McGuire has done a very careful series of experiments. He found that two out of four dogs in which he ligated the appendix and meso-appendix lived, and stated therefore that Costain's lethal standard was incorrect.

In carefully controlled animal experiments McGuire drained the thoracic duct after producing peritonitis. In culturing the lymph from the thoracic duct in six dogs he was able to get a positive culture in only one, the other five being sterile. Injecting the lymph into the blood of rabbits found it had no harmful effect. Therefore, toxic material was not coming away through the thoracic duct.

Moreover, in his experiments drainage of the thoracic duct seemed to have no effect on peritonitis. The work of Cox and Bell lead to much the same conclusions as that of McGuire.

There is evidence of three modes of absorption from the peritoneal cavity, namely: by blood stream, by lymphatics through the anterior mediastinum to the right lymphatic duct, and by the lymphatic duct. Therefore, in draining the thoracic duct we are only removing a small amount of the septic material.

The work done this year seems to indicate that, at least in most cases, draining the thoracic duct does not benefit peritonitis. It is a rather serious operation to attempt on a person as ill as these patients usually are. However, the question is not yet entirely settled.

PUBLIC HEALTH AND HYGIENE

By C. E. A. Winslow

Professor at Yale University School of Medicine

Studies on Cancer.—The basis of all public health work is a knowledge of the etiology of disease; and in this fundamental field the most notable development of the year 1925 was the work of Gye and his associates on cancer (*Lancet*, July 18, 1925, CCIX, pp. 109, 117 and 135). This remarkable series of investigations appears to indicate that malignant growths contain a cultivable virus (or viruses) apparently demonstrable by special methods of photography, which has the power of producing tumors when inoculated into animals simultaneously with tumor extract containing a "specific factor." Neither alone is capable of producing this result. The virus is non-specific, either for tissue or species; while the specific factor, as its name indicates, is definitely specific both for species and tissue. The significance of this relationship remains to be determined; and since there is a dual chain of causation no conflict is involved with the well-grounded epidemiological conclusion that cancer is not in actual experience a communicable disease. The results seem to harmonize much that has been obscure, and to contradict nothing that is well established, in regard to the etiology of cancer. They may very probably open the way to further advances of the first magnitude.

In connection with the general subject of cancer, mention may also properly be made of the admirable statistical study of Schereschewsky (*Public Health Bull.* 155, U. S. P. H. S.) demonstrating the real increase in cancer mortality in the registration States since 1920.

Control of Diphtheria and Scarlet Fever.—Diseases due to defective environmental sanitation, careless disposal of excrement, polluted water or milk supplies and the like, are rapidly disappearing from civilized communities. Thus, the typhoid rate for the larger cities of the United States averaged 3 per 100,000 for 1924 as against 20 in 1910; and only two cities (Nashville and Memphis) had in 1924 rates as high as the average for 1924. (*Jour. A. M. A.*, Mar. 14, 1925, CXXXIV, p. 813.)

Communicable Diseases.—On the other hand, the communicable diseases which are spread primarily by direct contact between one human being and another are much more difficult to control. With diseases of this class the production of artificial immunity by the use of sera and vaccines is our most effective weapon. Smallpox, for instance, has practically disappeared from countries with efficient autocratic governmental machinery and persists as a disease of democracy where the right of the individual to contract disease whenever he so desires is actively maintained. Thus the statistics of the Health Section of the League of Nations show that in 1924 there were only 16 cases of smallpox in Germany, 126 in Poland and 190 in Italy—against 1,234 in Switzerland, 3,765 in England and Wales and 55,537 in the United States.

The campaign for the control of diphtheria by Schick testing (to determine whether a child is already immune against this disease) and active immunization of those not already protected, by the use of toxin-antitoxin, has continued to make rapid progress during 1925. In dealing with younger children (which is the really important objective since over 50 per cent. of deaths from diphtheria occur under five years) it is now believed to be wisest to omit Schick testing and immunize all children directly. The Metropolitan Life Insurance Company and the State Charities Aid Association are backing a "No Diphtheria by 1930" campaign along these general lines in New York State.

In the case of scarlet fever we have now, thanks to Dochez and the Dicks, a similar test for immunity and a serum for treatment which is as effective as diphtheria antitoxin. All the work of 1925 (see *Jour. A. M. A.* for March 14 and for May 16, 1925) tends to confirm our faith in the value of these procedures and to show that scarlet fever, like diphtheria and smallpox, is now entirely within our control.

Studies in Tuberculosis.—During the year 1924, two potentially important discoveries were announced in connection with tuberculosis, the Calmette vaccine and the Möllgard sanocrysin chemotherapy. No conclusive report on either of these subjects has yet been made public but reports of progress by various investigators during 1925 are on the whole distinctly favorable to the former, and distinctly unfavorable to the latter, mode of treatment. Calmette's experiments on cattle and monkeys and clinical experience with some thousands of vaccinated infants all seem to indicate that the strain of tubercle bacilli which he has prepared is harmless, in the sense that it cannot produce disease in men or in animals, while it has retained the power when injected, or when taken through the mouth by young babies or young calves, of producing a real immunity, lasting several years. Whether this vaccine will be widely used for human beings or not, it seems worthy of extensive use in the protection of dairy cattle. On the other hand, Schroeder, Park and Smith in their studies of the gold compound, sanocrysin, suggested for the treatment of tuberculosis find that the effect of this drug on tuberculous animals is unfavorable rather than otherwise and they doubt whether it exerts any such specific effect upon the tubercle bacillus as was first postulated by the Danish observers. (W. H. Park, Biggs Memorial Address, N. Y. Acad. Med., Nov. 19, 1925.)

Oysters and Typhoid Fever.—Among the epidemiological events of the year, the outbreak of typhoid fever caused by oysters during the winter of 1924-5 is of outstanding importance. Some 900 cases in New

York, over 100 in Chicago, some 60 cases in Washington and many scattering cases in other cities, bringing the total to 1,500, were conclusively traced to oysters distributed by a Long Island producer. (*Jour. A. M. A.*, Feb. 28, 1925, LXXXIV, p. 641; and Supplement No. 50 to *Public Health Reports*, U. S. P. H. S.) The exact methods by which the oysters were polluted remains, however, a mystery since the layings from which they were ostensibly derived were of excellent character. The epidemic led to valuable studies on the viability of bacteria in oysters during storage and to a constructive symposium at the St. Louis meeting of the A. P. H. A., in the course of which the importance of purifying oysters by storage in chlorinated sea water was specially emphasized.

Pasteurization of Milk.—Bacteriologists and health administrators alike have been engaged during the year in a vigorous and sometimes acrimonious controversy in regard to milk pasteurization. A special study on Commercial Pasteurization (*Public Health Bull.*, No. 147, U. S. P. H. S.) including exhaustive bacteriological tests under field conditions led to the conclusion that 142° was a sufficiently high minimum temperature to ensure the destruction of pathogenic organisms. This view has been hotly contested by other experts and the question at issue as well as the whole problem of milk supply from an economic standpoint is now to be thrashed out by a special committee on Dairy Products of the American Public Health Association, of which Professor H. C. Sherman is chairman.

Dietary Hygiene.—In the field of dietary hygiene the most significant recent advance has perhaps been the extension of work on the dietary factor related to fertility. Evans and Mason (*Proc. Nat. Acad. Sci.*, July, 1925, XI, pp. 373 and 377) have shown that in the male as well as in the female the absence of the fat soluble "E" vitamine (found in lettuce leaves, milk fat, beef musculature, wheat germ, etc.) from an otherwise adequate diet leads to complete sterility accompanied by extensive degeneration of the reproductive tissues. The work of the last five years tends more and more to emphasize the fact that a diet adequate for growth may lack subtle elements which are essential for longevity, resistance to disease and reproductive power, and to remind us that the importance of an adequate diet is far greater than we have hitherto realized.

Industrial Poisons.—Notable progress in the development of public policy toward health hazards in industry has been made as a result of a series of fatal cases of lead poisoning arising in the manufacture of tetraethyl lead, the new "anti-knock" constituent of motor fuels. A conference called by the Surgeon General of the Public Health Service in May (*Public Health Bull.* No. 158, U. S. P. H. S.) led the Ethyl Gasoline Corporation to discontinue the manufacture of its product pending investigation and report by a special committee appointed by the Surgeon General—a precedent of the first importance. A somewhat similar, though unofficial, study of the hazards of benzol poisoning, conducted by a sub-committee of the National Safety Council has led to the conclusion that this substance is so dangerous that xylol, toluol or other less harmful solvents should be substituted for benzol in industrial processes wherever possible (Proc. Cleveland Meeting, N. S. C.).

Mental Hygiene.—In the field of mental hygiene, the publication of A. L. Gesell's book on *The Mental Growth of the Pre-School Child* (Macmillan, N. Y., 1925) is an event of major significance, pushing back our quantitative measurement of mental development into the early years of infancy and showing that the ultimate "mental age" of an adult can be predicted with reasonable closeness before the second year of his childhood. The whole problem of feeble-mindedness is nowadays being approached from a broader and saner viewpoint with the recognition that mental defect is not the deadly hereditary curse that amateur reformers sometimes paint. It is often not hereditary at all; and we are discovering that in the less acute forms of such defect we can "learn to live with the feeble-minded" and to make them reasonably useful citizens.

The Gorgas Memorial.—The Gorgas Memorial Institute of Tropical and Preventive Medicine has begun active operations during the year, with special emphasis on the control of tropical diseases and on the promotion of periodic health examinations, both specially appropriate tributes to the conqueror of yellow fever and the director of the Army draft examinations. The Republic of Panama has made generous provision toward the research institute to be created on the Isthmus; and in this country an active educational campaign has been conducted through the newspapers and by the use of radio, while mosquito control has been initiated in Cook County, Illinois.

Health Demonstrations. — Encouraging reports of progress come from the Commonwealth Fund Child Health Demonstrations at Mansfield, Ohio; Fargo, North Dakota; Athens, Georgia; Rutherford County, Tennessee; and Marion County, Oregon. The Milbank Tuberculosis and Health Demonstrations in Cattaraugus County, N. Y., and Syracuse, N. Y., are developing rapidly and are already yielding substantial results; while a third demonstration in the Bellevue-Yorkville section of New York City has been inaugurated. The East Harlem Health Center in New York City has issued an interesting summary of its first three years' work.

Standardization of Community Health Activities.—One of the most important events of the year has undoubtedly been the remarkable progress of the campaign initiated for the standardization of municipal health work by the Committee on Administrative Practice of the American Public Health Association. The first important step along this line was the survey of 83 large cities conducted by the Committee in 1921 (*Public Health Bulletin* No. 136, U. S. P. H. S.). In 1923 the United States Public Health Service surveyed 100 cities of over 70,000 population (results not yet published); and the American Child Health Association surveyed 86 cities of 40.000 to 70,000 population. The latter survey appeared in October, 1925, and is an admirably conducted survey, clearly and forcefully presented, giving a vivid picture of the status of the public health movement as a whole and of the achievement of each individual city, which should be studied in detail by every student of the problems of preventive medicine.

Meanwhile the Committee on Administrative Practice, with the aid of the American Child Health Association and other voluntary agencies and of a group of coöperating health officers, was preparing an Appraisal Form for the measurement of the actual status of community health work on an objective and quantitative basis. This form was issued in a tentative preliminary edition in 1924 and proved so valuable to the health officer in enabling him to gauge the effectiveness of his program and to secure official support for it, that a revised and approved Appraisal Form will be issued for general use in January, 1926.

VITAL STATISTICS

By William H. Davis

Bureau of the Census, Department of Commerce

Federal mortality statistics are compiled only for the death registration area and Federal birth statistics only for the birth registration area (Mortality Statistics and Birth, Stillbirth, and Infant Mortality Statistics —annual reports—published by the Bureau of the Census.)

A "registration area" is that portion of the United States recognized by the Federal Government as having adequate registration laws and registration at least 90 per cent. complete. December 31, 1925, the death registration area includes 41 states, the District of Columbia, the Territory of

Hawaii, and 14 cities in nonregistration states, or 91.6 per cent. of the total population of the United States, and the birth registration area includes 33 states and the District of Columbia, or 75.9 per cent. of the population of continental United States.

Vital Statistics Goal.—As this book goes to press the Bureau of the Census is endeavoring to reach the goal—*Every State in the Registration Area before 1930.*

The following tables show the state growth of the two areas:

STATES IN DEATH REGISTRATION AREA

State	Year	State	Year	State	Year
Massachusetts	[1]1880	Maryland	1906	North Carolina[6]	1916
New Jersey		Pennsylvania		South Carolina	
District of Columbia[2]		South Dakota[4]		Tennessee	1917
Connecticut	[1]1890	Washington	1908	Illinois	1918
Delaware[3]		Wisconsin		Louisiana	
New Hampshire		Ohio	1909	Oregon	
New York		Minnesota	1910	Delaware	1919
Rhode Island		Montana		Florida	
Vermont		North Carolina[5]		Mississippi	
Maine	[1]1900	Utah		Nebraska	1920
Michigan		Kentucky	1911	Georgia	1922
Indiana	1900	Missouri		Idaho	
California	1906	Virginia	1913	Wyoming	
Colorado		Kansas	1914	Iowa	1923
				North Dakota	1924

[1] Census year ending May 31.
[2] Included in registration States.
[3] Dropped from the registration area in the census year 1900.
[4] Dropped from the registration area in 1910.
[5] Included only municipalities having a population of 1,000 or more in 1900.
[6] The remainder of the State of North Carolina was added to the registration area in 1916. (See note 5.)

STATES IN BIRTH REGISTRATION AREA

State	Year	State	Year
Connecticut	1915	Ohio	1917
Maine		Utah	
Massachusetts		Virginia	
Michigan		Washington	
Minnesota		Wisconsin	
New Hampshire		California	1919
New York		Oregon	
Pennsylvania		South Carolina[3]	
Rhode Island[1]		Nebraska	1920
Vermont		Delaware	1921
District of Columbia[2]		Mississippi	
Maryland	1916	New Jersey	
Indiana	1917	Illinois	1922
Kansas		Montana	
Kentucky		Wyoming	
North Carolina		Florida	1924
		Iowa	
		North Dakota	

[1] Dropped from the registration area in 1919; readmitted in 1921.
[2] Included in registration States.
[3] Dropped from the registration area in 1925.

Death Rates.—The death rate of the death registration area for 1924 is 11.9 as against 12.3 for the previous year. The record low rate in this table is 11.6 for 1921 and the record high rate 18.1 for 1918, the year of the influenza pandemic.

The following tables show the crude death rates for the registration states and cities of 100,000 popula-

BIRTH REGISTRATION AREA: 1915-1924

Year	Birth Registration Area								
	Population[1]		Land Area		Births[2]		Deaths		Deaths of Infants Under 1 Year of Age Per 1,000 Births
	Number	Per Cent. of United States Total	Square Miles	Per Cent. of United States Total	Number	Rate Per 1,000 Population	Number	Rate Per 1,000 Population	
1915...	30,936,179	31.1	292,860	9.8	776,304	25.1	436,593	14.1	100
1916..	32,788,670	32.5	302,801	10.2	818,983	25.0	486,682	14.8	101
1917...	54,771,416	53.6	794,819	26.7	1,353,792	24.7	776,222	14.2	94
1918...	55,515,241	53.6	794,819	26.7	1,363,649	24.6	996,627	18.3	101
1919...	61,483,423	58.6	1,075,506	36.2	1,373,438	22.3	798,104	13.0	87
1920...	63,659,441	59.8	1,152,314	38.7	1,508,874	23.7	836,134	13.1	86
1921...	70,425,705	65.3	1,209,224	40.7	1,714,261	24.3	825,511	11.7	76
1922...	78,885,852	72.2	1,508,946	50.7	1,774,911	22.5	938,545	11.9	76
1923...	79,952,425	72.2	1,508,946	50.7	1,792,646	22.4	992,237	12.4	77
1924...	[3] 85,539,686	76.3	1,689,576	56.8	1,930,614	22.6	1,006,994	11.8	71

[1] Estimated July 1. [2] Exclusive of stillbirths. [3] Subject to slight change.

DEATH REGISTRATION AREA: 1880-1924

Year	Estimated Population July 1, of Continental United States	Registration Area (Exclusive of Hawaii)					
		Population		Land Area		Deaths from All Causes[1]	
		Number	Per Cent. of Total	Square Miles	Per Cent. of Total	Number	Rate Per 1,000 Population
Census year 1880......	[2] 50,155,783	[2] 8,538,366	17.0	16,481	0.6	169,453	19.8
Census year 1890......	[2] 62,947,714	[2] 19,659,440	31.2	90,695	3.0	386,212	19.6
Census year 1900......	[2] 75,994,575	[2] 28,807,269	37.9	176,878	5.9	512,669	17.8
Calendar year 1900....		[2] 30,765,618	40.5	212,621	7.1	539,939	17.6
Calendar year 1901....	77,747,402	31,370,952	40.3	212,770	7.2	518,207	16.5
Calendar year 1902....	79,365,396	32,029,815	40.4	212,762	7.2	508,640	15.9
Calendar year 1903....	80,983,390	32,701,083	40.4	212,762	7.2	524,415	16.0
Calendar year 1904....	82,601,384	33,345,163	40.4	212,744	7.2	551,354	16.5
Calendar year 1905....	84,219,378	34,052,201	40.4	212,744	7.2	545,533	16.0
Calendar year 1906....	85,837,372	41,983,419	48.9	603,066	20.3	658,105	15.7
Calendar year 1907....	87,455,366	43,016,990	49.2	603,151	20.3	687,034	16.0
Calendar year 1908....	89,073,360	46,789,913	52.5	725,117	24.4	691,574	14.8
Calendar year 1909....	90,691,354	50,870,518	56.1	765,738	25.7	732,538	14.4
Calendar year 1910....	92,267,080	53,831,742	58.3	997,978	33.6	805,412	15.0
Calendar year 1911....	93,682,189	59,183,071	63.2	1,106,734	37.2	839,284	14.2
Calendar year 1912....	95,097,298	60,359,974	63.5	1,106,777	37.2	838,251	13.9
Calendar year 1913....	96,512,407	63,200,625	65.5	1,147,039	38.6	890,848	14.1
Calendar year 1914....	97,927,516	65,813,315	67.2	1,228,644	41.3	898,059	13.6
Calendar year 1915....	99,342,625	67,095,681	67.5	1,228,704	41.3	909,155	13.6
Calendar year 1916....	100,757,735	71,349,162	70.8	1,307,819	44.0	1,001,921	14.0
Calendar year 1917....	102,172,845	74,984,498	73.4	1,349,629	45.4	1,068,932	14.3
Calendar year 1918....	103,587,955	81,333,675	78.5	1,546,166	52.0	1,471,367	18.1
Calendar year 1919....	105,003,065	85,166,043	81.1	1,649,281	55.5	1,096,436	12.9
Calendar year 1920....	106,418,175	87,486,713	82.2	1,726,012	58.0	1,142,558	13.1
Calendar year 1921....	107,833,284	88,667,602	82.2	1,726,012	58.0	1,032,009	11.6
Calendar year 1922....	109,248,393	93,241,643	85.3	1,965,589	66.1	1,101,863	11.8
Calendar year 1923....	110,663,502	96,986,371	87.6	2,021,237	68.0	1,193,017	12.3
Calendar year 1924....	112,078,611	99,030,494	88.4	2,091,456	70.3	1,173,990	11.9

[1] Exclusive of stillbirths. [2] Enumerated population, June 1.

tion or more in 1920. Caution should always be exercised in drawing deductions from crude death rates, for due allowance must first be made for deaths of nonresidents and for the peculiar composition of the population as regards age and sex distribution, color and nativity, as well as other factors. The generally high rates for southern cities are due to the large proportion of colored population.

Infant Mortality Rates.—The 1924 infant mortality rate breaks all records for the birth registration area. The infant mortality rate, 71 for 1924, is well below the 1923 rate, 77, and far below the 1915 rate, 100.

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Editor, "Journal American Medical Association"

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DIVISION XXXIV
PHILOSOPHICAL AND SOCIAL SCIENCES

PHILOSOPHY

By Herbert Wallace Schneider
Assistant Editor, "Journal of Philosophy," Columbia University

Scholasticism and Exposition.—Whether or not virtue can be taught, philosophy must be. In this country especially, philosophy is today seldom engaged in out of love for wisdom; it is rather, as Cicero defined it, a *studium*, something taught in our schools. There are, of course numerous men of letters and even an occasional clergyman, who reveal a dominant interest in wisdom and an intelligent pursuit of it, but these men do not profess to be philosophers, and the professors of philosophy in turn avoid all who are not members of the acadėmic guilds. The professional philosophers, however, do not earn their living by pursuing philosophy, but by teaching it.

Happily these two functions are not entirely distinct. Scholasticism has in all ages encouraged systematized and consistent expositions of philosophies, and the expounder may at the same time be an inquirer. But on the other hand, scholasticism has always exerted a narrowing influence in that it has encouraged systems, labels, artificial terminologies, and protracted logomachies. American professors of philosophy appear to be gradually freeing themselves of this tradition, but the process is naturally slow, for academic walls are very thick.

New Texts.—This year has witnessed an unusual number of texts designed to "introduce" students to philosophy. Professors G. T. W. Patrick, G. Watts Cunningham, G. P. Conger, James H. Regan and C. W. Brightman have each written an *Introduction to Philosophy.* These texts are symptomatic of the dominantly pedagogical and scholastic approach to philosophy, but at the same time, compared with former texts, they signify considerable progress in the direction of understanding and criticising various philosophies. There is still the natural effect which every genuine philosopher always gives of introducing students to his own philosophy and of regarding all others as if precisely designed to culminate in this one. And even where the author's philosophership is subordinated to his professorship, and the panorama of philosophies is hence conceived more objectively, there is the old tendency to regard them all as parts of one dialectical whole, or at least of a single "evolution of thought." Nevertheless these texts are not only less formal and academic than their predecessors, but also more useful as academic introductions, in that they are calculated to stimulate the interest and reflection of the student rather than to settle his mind once and for all.

Logic. — The introductory *Logic* courses in most of our colleges have also borne their annual fruit: Professors H. E. Cunningham, D. S. Robinson and M. T. McClure have written elementary texts for college courses in logic. The last named of these makes a significant departure in the direction of emphasizing the process of thinking and its guidance in place of the more traditional emphasis on the laws and structure of proof and argument.

Growth in Research.—Among the current evidences that our university philosophy departments are devoting themselves more explicitly to research and less to the composing of courses and texts, should be mentioned the work of the Philosophical Union of the University of California. It has not only engaged in a number of coöperative inquiries into fundamental problems, but has secured the assistance of eminent scholars from other universities, and the results have been published in a series of volumes. Volume VII, published this year, is entitled, *Studies in the Problem of Norms, University of California Publications in Philosophy, Volume 7*, and contains lectures by Professors Adams, Lengen, Prall, Pepper, Parker, Loewenberg, and Montague. Present and former members of the Department of Philosophy of Columbia University, have published Volume II of their *Studies in the History of Ideas*, in which are published a number of significant researches from the historical point of view.

Kant Anniversary.—The years 1924 and 1925 have been the occasion of celebrating the two-hundredth anniversary of Kant. A large meeting was held for this purpose at Boston, April, 1924, and the results published. The meetings of the Philosophical Association, and the various journals have brought out a large number of "*Kant Studien.*" Number Two of this year's Monist is devoted entirely to Kant.

Creighton.—The deaths of Professors Fullerton and Creighton mark the passing of two of the most distinguished of the philosophers of the older generation. Professor Creighton was one of the greatest leaders of philosophical thought in this country and very influential as one of the founders of the Philosophical Association, and of the *Philosophical Review.* It was therefore only fitting that considerable attention should be paid to him during the year. The Eastern Division of the Philosophical Association held a memorial meeting and the Western Division took this occasion to devote its session in April to the philosophies of Bradley, Bosanquet and Creighton. A collection of Creighton's philosophical studies together with a bibliography has been edited by Professor Smart and Professor Hammond, and published under the title, *Studies in Speculative Philosophy.*

Carus Foundation.—Probably the most significant philosophical event of the year was the publication of the first lectures on the Paul Carus Foundation. This foundation is in itself an important institution, which may be expected to offer the needed encouragement and opportunity for the very finest type of scholarship, and the first volume, John Dewey's *Experience and Nature*, is therefore doubly significant.

Dewey.—This book represents the broadest and most searching expression which Professor Dewey has yet given to his "critical radical empiricism." It is definitely an attempt to develop his analysis of experience, which has traditionally had an idealistic background, upon a naturalistic basis, and it employs the results of anthropological and historical sciences, rather than of traditional psychology and epistemology in distinguishing the various phases and types of human experience and the effects of their variations upon such fundamental concepts as nature, means and ends, purpose, value, art and science. It is especially thorough-going in its attempt to prove that the eulogistic implications of the concepts of universals and the super-empirical have traditionally linked them with ends, whereas empirically they are means, the ends being particular and individual. Hitherto Professor Dewey had emphasized the implications of this thesis for the problem of knowledge; here he emphasizes its implications for the more catholic problems and fundamental categories of philosophic thought.

Santayana.—Two other important philosophies have received classic expressions during the year. Santayana's *Dialogues in Limbo*, though they are in substance merely a further exposition of the philosophy outlined in *Scepticism and Animal Faith*, are an unusually beautiful composition, even compared with Santayana's other writings, and are unusually rich in historical criticism, imagination and practical wisdom. The ironical treatment given to scepticism in the former volume, yields in this one to a poetic treatment of "animal faith," here termed "normal madness."

Whitehead.—Professor Whitehead, who is at least temporarily a member of the American fraternity of philosophers, has given to his own and in general to the contemporary British variety of realism a new and dignified expression in his *Science and the Modern World.* In this volume he attempts to show the effects of the varieties of scientific method not only on philosophy but on the larger reaches of the imagination, and he attempts to predict the revolutionary consequences for thought and imagination which are implied in the recent developments of mathematical analysis.

Psychologic.—This year has been particularly fertile in producing typical and comprehensive analyses of mind. Professor E. A. Singer's *Mind as Behaviour,* is an original reconstruction of idealism on a behaviouristic basis, which is significant not merely for it suggestiveness as a fresh analysis of mind, but for its indications of a new direction which "empirical" idealism seems to be taking, and which makes an interesting foil to the "speculative" idealism of Creighton. Both Creighton and Singer realized the futilities of the old psychology, but Creighton turned to the old Logic, whereas Singer turns to the new psychology. G. W. Cunningham's *Five Lectures on the Mind,* from the point of view of a modified idealism, W. P. Montague's *The Ways of Knowing,* from the point of view of a "neo-realist," and Durant Drake's *Mind and Its Place in Nature,* from the point of view of a "critical realist," form an impressive Symposium. There seems to be a general desire on all hands to avoid the dualistic position, and probably all these authors would agree with Professor Drake, when he says: "The differentiation of the mental does not lie in its substance; mental states or events, are made of just the common substance of all things. The differentiation of the mental lies in the concrete relations which link this coördinated system of processes to the things or events that stimulate them, and to the further bodily processes which they evoke." But in the positive problem of analysing these "relations" and "processes" there is still a bewildering variety of opinion. The discussion about perception carried on in the *Journal of Philosophy* by Professors C. A. Strong and W. P. Montague should also be mentioned in this connection.

Behaviourism. — The discussion of behaviourism has continued, but attention has been directed not so much to the problems of psychological methodology as to the implications of behaviourism for such concepts as purpose and mechanism. The Symposium on "Time" at the December meeting of the Eastern Division of the American Philosophical Association is further evidence of the growth of interest in a fresh analysis of fundamental categories.

Value.—The discussions on Value, and particularly Professor Dewey's articles on Value in the *Philosophical Review,* and the *Journal of Philosophy,* represent the "tag end," presumably of a protracted discussion and of an even more protracted preoccupation with the problem of value.

In the field of ethical theory the most important contributions have been: M. C. Otto, *Things and Ideals;* Warner Fite, *Moral Philosophy* (following up the analysis of self-consciousness started in his *Individualism,* 1911); Norman Wilde, *The Ethical Basis of the State;* and W. K. Wright, *The Moral Standards of Democracy.* Professor Eaton of Harvard has made an important and original adventure into the new developments of logic by his *Symbolism and Truth.* Professor Smart's *The Philosophical Presuppositions of Mathematical Logic,* is interesting as an evaluation of the newer symbolic logic by a representative of the idealistic logic.

Select References. — *The International Library of Philosophy, Psychology and Scientific Method,* which is being published by Harcourt, Brace and Company, and which represents a notable advance in philosophical literature in this country, is to be congratulated, if for no other reason, for the new edition of F. A. Lange's *The History of Materialism.* After it, the most important new editions are H. M. Kallen's volume of selections from the writings of William James, with an excellent Introduction (*Modern Library Series*), and Ralph Barton Perry's new edition of Weber's *Philosophy of History,* with additional chapters of his own on recent developments.

Among the historical studies published this year, the most important are the following: George Boas, *French Philosophies of the Romantic Period;* E. A. Burtt, *The Metaphysical Foundations of Modern Science;* W. C. Stace, *The Philosophy of Hegel;* C. W. Hendel, *Studies in the Philosophy of Hume;* J. H. Randall, Jr., *The Growth of the Modern Mind;* and A. Wolf, *The Philosophy of Nietzsche.*

The most important philosophical periodicals published during the year are: *The Philosophical Review, The Journal of Philosophy, The Monist,* and *The International Journal of Ethics.*

In 1924 the Pacific Division of the American Philosophical Association was organized and held its first meeting at the University of California. Professor H. W. Stuart was elected President. The 1925 meeting was held at Stanford University, November 27 and 28. The 1924 meeting of the Eastern Division was held at Swarthmore College, and was presided over by Alexander Meiklejohn. The 1925 meeting was held at Smith College, Professor Wilbur M. Urban, being president.

PSYCHOLOGY

By Herbert Sidney Langfeld

Director, Psychological Laboratory, Princeton University

General.—There have been several encouraging signs of progress in experimental psychology this past year. An Institute of Psychology devoted to research has been started at Yale University. This Institute is in addition to the Psychological Laboratory. R. M. Yerkes, R. Dodge and C. Wissler, together with H. C. Bingham, constitute the staff. Dodge is conducting experiments on eye movements and on physiological changes. Yerkes is working on the primates, and Wissler is engaged in anthropological investigation. The first independent psychological laboratory in the western hemisphere, planned exclusively for teaching and research, has been erected at Princeton University. At its inauguration in April, E. B. Titchener gave an address entitled *Experimental Psychology; A Retrospect* (*Am. Jour. Psych.,* July, 1925). At Clark University the G. Stanley Hall Professorship in Genetic Psychology has been established, and W. S. Hunter has been appointed the first incumbent. At the December meeting of the American Psychological Association papers in memory of G. Stanley Hall were read by W. H. Burnham "The Man, G. Stanley Hall" (*Psych. Rev.,* March, 1925), and by E. D. Starbuck "G. Stanley Hall as a Psychologist" (*Ibid.*).

Theoretical. — The *Gestalt* theory or as it is commonly translated, the "Configuration" theory, has received prominence in America through the visit of Wolfgang Köhler, director of the Psychological Laboratory of the University of Berlin, and Kurt Koffka of the University of Giessen. Köhler's book, *The Mentality of Apes*" (Harcourt, Brace, 1925), and Koffka's *The Growth of the Mind* (*Ibid.*) have recently been translated from the German. The theory, which they have been describing in numerous lectures throughout the country, states that we perceive objects, relations, and situations and then proceed to analyze them, and that these perceptions are something more than the mere summation of their parts or elements. A number of psychologists in America, inspired by these authors, have recently written articles upon this theory.

Helson's description of the *Psychology of Gestalt* is the most complete (*Am. Jour. Psych.*, July-Oct., 1925). A number of new textbooks have appeared this last year. J. B. Watson's *Behaviorism* (The People's Institute Printing Co.), which is based upon the lectures which he gave before the People's Institute, is somewhat more radically behavioristic than his last book. M. Bentley's *The Field of Psychology* (Appleton, 1925), covers the field of individual, social, and genetic psychology, and incorporates both the old and the newest doctrines in psychology. H. C. Carr's *Psychology* (Longmans, Green, 1925), is a careful study along rather traditional lines. T. V. Moore's *Dynamic Psychology* (Lippincott, 1925), aims to impart a practical understanding of the inner life and mental difficulties. Behaviorism, which was first made popular in America by J. B. Watson, continues to have a very strong influence.

W. S. Hunter, who is a conservative adherent to the theory, has proposed a new term for the study which deals with human nature as contrasted with the study of mind, "General Anthroponomy and Its Systematic Problems" (*Am. Jour. Psych.*, April, 1925). C. Rosenow believes that a mechanistic behaviorism cannot deal with mind. *The Problem of Meaning in Behaviorism* (*Ibid.*).

H. C. Warren has described *Mechanism and Teleology in Psychology* (*Psych. Rev.*, July, 1925). E. C. Tolman, who has always been a very constructive behaviorist, has a paper upon *Purpose and Cognition; The Determiners of Animal Learning* (*Ibid.*). J. E. Dashiell has offered *A Physiological-Behavioristic Description of Thinking* (*Ibid.*, Jan., 1925), and J. E. Markey has described *The Place of Language Habits in a Behavioristic Explanation of Consciousness* (*Ibid.*, Sept., 1925). A. P. Weiss has expounded his views of behaviorism in his new book entitled *A Theoretical Basis of Human Behavior* (R. G. Adams, 1925). L. Carmichael has criticised and evaluated Titchener's and McDougall's doctrines; *An Evaluation of Current Sensationalism* (*Psych. Rev.*, May, 1925). Partly through the interest in behavioristic psychology, a number of experimenters have worked upon the conditioned reflex. H. Cason has described *The Physiological Basis of the Conditioned Reflex* (*Am. Jour. Psych.*, July, 1925). G. Humphreys asks the question, *Is the Conditioned Reflex the Unit of Habit?* (*Jour. Abnorm. and Soc. Psych.*, April, 1925). J. L. Mursell contends that nutrition is a psychological factor in life as significant as sex; *Contributions to the Psychology of Nutrition* (*Psych. Rev.*, July, Sept., Nov., 1925).

Experimental Methods.—There are indications from the literature that the interest of psychologists is being directed away from the so-called sensations to perceptions, emotions, and the higher mental processes. Reflexes and habit formations are also frequent subjects for investigation. H. E. Burtt and W. W. Tuttle have found that unpleasant words when repeated to an individual at the time of stimulating the patellar tendon depressed the reflex more than do pleasant words. *The Patellar Tendon Reflex and Affective Tone* (*Am. Jour. Psych.*, Oct., 1925). A. M. Thorsen has made a behavioristic study of *The Relation of Tongue Movements to Internal Speech* (*Jour. Exp. Psych.*, Feb., 1925). D. Weschler's paper on *The Measurement of Emotional Reactions; Researches on the Psycho-Galvanic Reflex* (*Arch. of Psych.*, No. 76, 1925) is especially valuable for the technique described. H. K. Nixon showed by a series of questions how many erroneous beliefs are held by educated persons; *Answers to Certain Psychological Questions* (*Am. Jour. Psych.*, July, 1925). A number of papers deal with the emotional life. V. Conklin and F. L. Dimmick have made *An Experimental Study of "Fear"* (*Ibid.*, Jan., 1925). W. F. Blatz has made an extensive study of *The Cardiac, Respiratory, and Electrical Phenomena Involved in the Emotion of Fear* (*Jour. Exp. Psych.*, April, 1925). E. Totten discovered in six out of fourteen cases an increase in oxygen consumption following emotional stimulation; *Oxygen Consumption During Emo-*

tional Stimulation (*Comp. Psych. Mon.*, No. 13, 1925).

A number of investigations are closely associated with æsthetic problems. M. Monroe has shown that colors seem to have weight, which influences our arrangement of them; *The Apparent Weight of Colors, and Correlated Phenomena* (*Am. Jour. Psych.*, April, 1925). H. K. Mull has proven that contrary to the idea that absolute pitch is innate, the average person can acquire absolute pitch through practice; *The Acquisition of Absolute Pitch* (*Ibid.*, Oct., 1925). K. Gordon has investigated the correlation between memory and pleasant and unpleasant odors; *The Relation of Pleasant and Unpleasant Odors* (*Jour. Exp. Psych.*, June, 1925). E. B. Skaggs has made a further study in *Retroactive Inhibition* (*Psych. Mon.*, No. 161, 1925), in which he found that it is better to rest after a period of learning than to engage immediately upon some other strenuous work. D. Stumberg in an experiment on the detection of deception made *A Comparison of Sophisticated and Naïve Subjects by the Association-Reaction Method* (*Am. Jour. Psych.*, Jan., 1925). H. F. Whiting and H. B. English found that fatigue did not directly cause decrease in work; *Fatigue Tests and Incentives* (*Jour. Exp. Psych.*, Feb., 1925). E. A. Bott on the basis of experiments has formulated *The Law of Orientation in Stereoscopy* (*Ibid.*, Aug., 1925). R. M. Dorcus has found that increased blood pressure and pulse rate are due to tobacco and not to suggestion (*Effect of Suggestion and Tobacco on Pulse Rate and Blood Pressure, Ibid.*, Aug., 1925). E. J. Swift and J. A. McGoech have found that periods of time, at least up to five minutes, whether filled or empty, are under-estimated by both men and women; *An Experimental Study of the Perception of Filled and Empty Time* (*Ibid.*, June, 1925). W. R. Miles and Eugene Shen found that vertical reading was not less efficient than horizontal; *Photographic Recording of Eye Movements in the Reading of Chinese in Vertical and Horizontal Axes; Method and Preliminary Results* (*Ibid.*, Oct., 1925). In the field of sensation C. E. Ferree and G. Rand have contributed three more studies on the problems of photometry (*Am. Jour. Psych.*, April, 1925).

Study of the Abnormal.—The American and European friends of Morton Prince have contributed to a volume on *Problems of Personality* (Harcourt, Brace, 1925), in honor of his 70th birthday. The articles for the most part deal with the subconscious mechanism. Morton Prince himself has given a further description of his theory of the subconscious in an article entitled *Automatic Writing Combined with Crystal Gazing* (*Jour. Abnorm. and Soc. Psych.*, April, 1925). William McDougall approves of Freud's adoption of the hormic principle. He considers it a great advance for the Freudian psychology (*Ibid.*). J. Slawson has indicated the general trend of the *Psycho-neurotic Response of Delinquent Boys* (*Ibid.*, Oct., 1925). P. C. Young has found that there are practically no observable differences between the normal and hypnotic states in regard to sensing, perceiving, discriminating, memorizing, and physical work not involving fatigue (*Am. Jour. Psych.*, April, 1925). L. E. Bisch's *Clinical Psychology* may be useful to social workers, as it gives an idea of amentia, epilepsy, and psychopathic states, and describes procedure in neurological clinics (Williams & Wilkins, 1925). A. Myerson, who has had considerable experience in clinical work, has just published a book entitled *The Inheritance of Mental Diseases* (Williams & Wilkins, 1925).

Animal Study.—There has been this year increased interest in the experiments on infra-human organisms. D. Moseley in an article on the *Accuracy of the Pecking Response in Chicks* (*Jour. Comp. Psych.*, Feb., 1925), states that there is accuracy in pecking from the first, but that the chick has to learn to seize the food. C. P. Stone has found that there is a change in sex habits due to change in diet; *Delay in the Awakening of Copulatory Ability in the Male Albino Rat, Incurred by Defective Diet* (*Ibid.*, April, 1925). C. F. Sams and E. C. Tolman have found that rats can discriminate between one minute and six minute intervals of time; *Time Discrimination in White Rats* (*Ibid.*, June, 1925).

Social Study.—C. H. Judd has given a psychological interpretation of social institutions; *Psychological Bases of Social Studies* (Macmillan, 1925). K. Dunlap has just published a new *Social Psychology* (Williams & Wilkins, 1925). R. S. Woodworth (*Jour. Abnorm. and Soc. Psych.*, April, 1925), has written a comprehensive and appreciative review of F. H. Allport's important *Social Psychology* (Houghton, Mifflin, 1924). G. M. Lowe and M. E. Stumberg do not believe that moral judgments are reliable indications of moral integrity; *A Critique of Fables as a Moral Judgment Test* (*Jour. Applied Psych.*, March, 1925). T. H. Lund has made an empirical investigation of *The Psychology of Belief* in which he found that belief is largely conditioned by emotional states (*Jour. Abnorm. and Soc. Psych.*, July, 1925). J. H. Leuba has made another valuable contribution to the psychology of religion in his *The Psychology of Religious Mysticism* (Harcourt, Brace, 1925). H. T. Moore, on the basis of experiments on college students, believes there are *Innate Factors in Radicalism and Conservatism* (*Jour. Abnorm. and Soc. Psych.*, Oct., 1925). T. C. Paschal and L. R. Sullivan have described the *Racial Influences in the Mental and Physical Development of Mexican Children* (*Comp. Psych. Monthly*, Oct., 1925). They found that skin color shows the highest correlation with mental scores.

Applied Psychology.—H. E. Burtt and E. M. Dobell have described the *Curve of Forgetting for Advertising Material* (*Jour. Applied Psych.*, March, 1925). J. L. Holmes has used the *Free Association Method as a Measure of the Efficiency of Advertising* (*Ibid.*, June, 1925). G. Brammer has investigated *The Static Equilibrium of Airplane Pilots* (*Jour. Comp. Psych.*, Oct., 1925). M. Schoen has devised *Tests of Musical Feeling and Musical Understanding* somewhat after the manner of the Seashore Tests (*Ibid.*, Feb., 1925). G. C. Brandenburg believes it possible to determine the relations of various characteristics of personality and the relative importance of traits for success in different vocations (*Analyzing Personality, Jour. Applied Psych.*, June, 1925; *Personality and Vocational Achievement, Ibid.*, Sept., 1925).

Educational.—Mental tests continue to be the chief topic of interest in educational psychology. The College Entrance Examinations Board has appointed a committee of psychologists with C. C. Brigham as chairman, to devise tests for college students. W. E. Bagley's new book is entitled *Determinism in Education* (Warwick & York, 1925). W. Stern has described the child's life from birth to the sixth year in *Psychology of Early Childhood* (Holt, 1925). W. B. Pillsbury's book is entitled *Education as the Psychologist Sees It* (Macmillan, 1925). L. R. Marston has made a study of introversions and extraversions in children: *The Emotions of Young Children* (University of Iowa Studies, No. 95, June, 1925). L. C. Wagener states that the constructive ability in young children is not a function of intelligence. It appears to be a special ability. *The Constructive Ability of Young Children* (*Ibid.*, No. 94, June, 1925). R. M. Ogden has incorporated the *Gestalt* theory in his idea of *The Nature of Intelligence* (*Jour. Ed. Psych.*, Sept., 1925). C. Spearman has challenged E. L. Thorndike to an experimental verification of the factor theory of intelligence (*Ibid.*). L. L. Thurstone has described *A Method of Scoring Psychological and Educational Tests* (*Ibid.*, Oct., 1925). W. F. Hyde and J. R. Gilford were able to eliminate two-thirds of the failures in chemistry by *A Test for Classification of Students in Chemistry* (*Jour. Applied Psych.*, June, 1925). A. T. Poffenberger states that the higher a man stands in college the greater chance he has of succeeding in after life; *School Achievement and Success in Life*; (*Jour. Applied Psych.*, March, 1925). J. A. McGoech found in normal intelligent children no direct relation between intelligence and their fidelity in reporting what they had experienced (*Am. Jour. Psych.*, July, 1925). I. Carmichael has made *A Study of a Case of Mirror Writing,* and gives an explanation of this abnormal phenomenon (*Studies in Ed. Psych. and Ed. Measurement*, 1925).

ANTHROPOLOGY AND ETHNOLOGY

By George Grant MacCurdy

Professor at Yale University

A survey of progress in the anthropologic sciences admits of geographic treatment. Since the earliest stages in cultural and physical evolution of man are found in the Old World, we shall cover that field first.

EUROPE

France.—Dr. E. Passemard reports the discovery of ancient crude flint artifacts on the left bank of the Adour river in the section known as La Chalosse (Landes), southern France; this discovery was made by P. Dubalen with whom Passemard later collaborated. It affords additional evidence in support of the existence of a Pleistocene industry antedating the Chellean Epoch; it is generally referred to as Pre-Chellean. The deposits in which the very old crude implements are found rest on yellow sands of the Lower Pliocene. Above the pebbly layer containing the crude implements there is a relic-bearing deposit with three artifact levels: Challean, Acheulian, and Mousterian respectively. The whole is capped by vegetal earth with objects dating from the Neolithic and later. Most of the implements from the Pre-Chellean horizon are fashioned from Senonian flint nodules or large flakes of the same flint; a few however, are from quartzite pebbles.

The Dordogne continues to yield rare examples of Paleolithic art. Two fine figures in relief of the wild ox (*Bos primigenius*) on stone have just been published by Capitan and Peyrony. The legs and ventral portion of one figure are hidden behind the body of the other beast, of which the observer has an unobstructed view. In other words, the artist has deftly rendered the profile of two oxen standing side by side as they would appear to a beholder in a more elevated position. The figures have been referred to a late phase of the Solutrean Epoch.

Switzerland.—Since 1923 Dr. Emil Bächler has explored Wildenmannlisloch, a cavern in the canton of St. Gallen on the northern slopes of the Churfirsten, at an elevation of 1600 meters (5,253 feet), above the sea. Culturally and chronologically, as well as geographically, Wildenmannlisloch links Wildkirchli with Drachenloch. It lies some 20 kilometers (12.5 miles) southwesterly from the Ebenalp (Wildkirchli) from which it can be reached by way of the Rotsteinpass, and some 30 kilometers (18.75 miles) northwesterly from Drachenloch. The stone and bone industry as well as the fauna resemble the fauna and industry from Wildkirchli and Drachenloch. Remains are found at two successive occupation levels which are intercalated between two glacial deposits of clay—Riss below and Würm above. The Würm clay is capped by a postglacial deposit. The leading fossils of the lower occupation level are cave bear and cave lion; the red deer makes its appearance at the top of the upper level.

As at Wildkirchli and Drachenloch, the socket of the cave bear hip bone was used as a vessel after the removal of the iliac, ischiac, and pubic portions; use was also made of the proximal end of the cave bear fibula as a tool.

One of the finds at Wildenmannlisloch may serve to throw light on how man first came to be an artist. There is now a good deal of cumulative evidence pointing to the influence of fortuitous resemblances in nature to animal forms as bearing on primitive man's nascent artistic bent. Once detected, natural effigies would be gathered and treasured, and means would eventually be found to supplement and improve on nature's haphazard creations. The specimen in question from Wildenmannlisloch consists of a piece of lower jaw of the cave bear which bears a striking resemblance to a human head and body; the concavity of the socket that held the canine forms the neck and chin. The piece bears evidence of a considerable amount of wear as if it had been carried as a fetich.

In 1924 Professor O. Tschumi discovered at Moosbühl near Bern, an important loess station with Magdalenian hearths at a depth of 40 centimeters (15.7 inches). This level has yielded a typical industry including combination scratcher-gravers blades with back worked down, small nuclei (all of flint) and bone points. Above the Magdalenian level, Tschumi found vestiges of a Neolithic and a Roman occupation. Moosbühl lies close to the line representing the maximum extension of the Würm glaciation and is nearer to the heart of the Alps than any other Magdalenian station yet discovered; it probably belongs to the closing phase of the Magdalenian coincident with a much restricted area of Alpine Würm glaciation.

Czechoslovakia.—One of the outstanding Paleolithic discoveries of the past summer is that reported by Dr. K. Absolon. It is a great loess station on the northern slope of Palavske mountain near the village of Dolni Vistonice (Unter Wisternitz). The site is near the southern frontier of Czechoslovakia, about midway between Brünn and Vienna; it covers a considerable area and is rich in relics of the Aurignacian Epoch. The most important specimen discovered is an indurated clay figurine representing the human female and belonging to the so-called Venus type. The Dolni Venus is a cross between the Willendorf Venus of stone found some twenty years ago in the Danube valley only a short distance to the west, and the Lespugue Venus of ivory found in 1922 in southern France (Haute-Garonne).

Other clay figures discovered at Dolni Vistonice include that of a human hip and leg, and a bear; there is also the figure of a young mammoth carved out of a so-called *loess poupée* or concretion. The four legs stand out free from the body; the stump of the broken trunk had been polished by use. The *poupées* of the recent loess are always small, so that this figure of the mammoth measures only 2.6 centimeters (1 inch) by 2.1 cm. high. In addition the site has already yielded many implements of flint and stone, also the upper portion of a human cranium prepared for use as a vessel, not unlike those found some years ago in the cave of Placard (Charente), France and numerous skeletal remains of the mammoth.

Russia.—The discovery of fossil human remains has been reported from the Crimea. The rock shelter (or cave) known locally as Kik-Koba is near the village of Kiptchak, about 25 kilometers (15.6 miles) east of Simferopol. A section reveals two relic-bearing horizons separated by an almost sterile deposit of yellow clay. The lower deposit has yielded some 200 flint implements, 3,000 flint chips, two human skeletons (adult and child), and fossil animal remains: mammoth, woolly rhinoceros, saiga antelope, giant deer, bison, horse, fox, etc. The human adult skeleton is said to be of the Neanderthal type.

The upper horizon is likewise rich in artifacts and fossil animal remains: giant deer, saiga antelope, and red deer. The fauna from both horizons is obviously of Pleistocene age; the cultural remains are probably Mousterian. Whether the human skeletal remains are as old as the deposit, or intrusive and of later date, is apparently not yet fully determined.

Dr. R. Saller has reported the discovery of the upper front portion of a human cranium in a loess deposit at Podkumok in the Crimea. The fragment might be described as belonging to an attenuated Neandertal type and is probably of Aurignacian age.

ASIA AND AFRICA

Asia.—Our knowledge of the ancient habitat, or geographic range, of Neanderthal man is gradually widening. The British School of Archeology in Jerusalem has just reported the discovery of a frontal bone of the Mousterian or Neanderthal type in "Mugharet el Zuttiyje" or Robber's Cave near Tabgha, some six miles northwest of Tiberias. The big brow ridges and the low forehead, as well as the associated artifacts, leave no doubt as to the Mousterian age of the specimen in question.

Père E. Licent and P. Teilhard de Chardin have found indubitable traces of Pleistocene man to the south of the Ordos over an extent of some 200 kilometers (125 miles) in length. They mention three localities: the basin of the Choei-tong-k'eou near Ning-hia-ofu; the banks of the Sjara-osso-gol, south of the Ordos; and the grand loess in the vicinity of Yu-lin-fou.

In the Choei-tong-k'eou basin there is a distinct habitation level in the loess as well as isolated specimens so distributed as to show that throughout the period of loess formation man lived in this region. The first discovery (1920) included the skull of a woolly rhinoceros in association with a chipped implement of quartzite. The artifacts, for the most part of quartzite, are very numerous. Fossil animal remains found in the kitchen refuse include: wild ass, wild ox, gazelle, woolly rhinoceros, and hyena.

The Sjara-osso-gol, an affluent of the Hoang-ho, descends from the loess mountains of the Chensi and traverses the southeast angle of the Ordos, where it forms a canyon in some places 70 meters (230 feet) deep. As at Choei-tong-k'eou, so also in the basin of the Sjara-osso-gol, man had lived on an old land surface and there left his artifacts and kitchen refuse. In the latter, while the artifacts are rare and of small size, the fauna is very rich. No human skeletal remains were encountered in either locality. At Sjara-osso-gol the animal remains are remarkably well fossilized. The species comprise: elephant, woolly rhinoceros, wild ass, wild ox, giant deer, wolf, cave hyena, badger, *Arvicola*, etc.

To the south of the Ordos a great loess mantle spreads across Chensi and Kansu, in some places attaining a thickness of 150 meters (492 feet). This grand loess mantle is contemporaneous with and geographically near to the deposits of Sjara-osso-gol and Choei-tong-k'eou. Near the base of the grand loess, Licent and Teilhard found implements of quartzite at You-fang-t'eou to the south of Yu-lin-fou. These implements are thought to be the same age as those found in the basins of Choei-tong-k'eou and Sjara-osso-gol. The conclusion is that man lived contemporaneously in all three of these localities with the Mousterians, and perhaps the early Aurignacians, of Europe.

A flint blade retouched on the margins of one face only, found at Skotovo near Vladivostock, has just been published by Breuil, who refers to it as representing a culture equivalent to the European Aurignacian. Skotovo lies some 2,000 kilometers (1,250 miles) northeasterly from the Ordos in northern China.

Africa.—A discovery of prime importance in the realm of fossil primates was announced early in the year by Professor Raymond Dart of Witwatersrand University at Johannesburg. The specimen in question is the almost complete skull of a young individual of about four years, representing either an anthropoid or a form intermediate between living anthropoids and man. Whether it be a fossil chimpanzee or a fossil link connecting anthropoids with man, the value of this specimen is great because of its completeness. One's first impression from casts and illustrations is that it is more humanoid than anthropoid. Both the face and cranium are long, producing a harmonious whole; the nasal region seems to be distinctly anthropoid. On the other hand there are characters of both skull and brain which border on the humanoid. The endocranial cast is so well preserved as to admit of interesting observations leading Professor G. Elliot Smith to conclude that the skull belonged to an ape whose brain points the way toward the human brain.

The specimen was taken from a

cave in a calcareous formation near Taungs, some 128 kilometers (80 miles) north of Kimberley. It is known as the Taungs skull. According to R. Broom, the deposit in which it was found is of Pleistocene age. If this be true, the value of the skull as representing a type ancestral to both man and the higher apes, is appreciably diminished.

Dr. A. Hrdlicka of the United States National Museum, just returned from a six months' survey in the Far East and Africa connected with man's origin and evolution, reports that the Taungs region and the Broken Hill country of South Africa both offer immense possibilities in throwing light on human origins; the two other regions mentioned by Dr. Hrdlicka as offering unusual opportunities for anthropologic research are the Siwalik Hills of India and the valley of the Solo River in Java.

Polynesia.—During 1925 the Bernice P. Bishop Museum, under the direction of Professor H. E. Gregory, continued its study of the Polynesians with particular reference to origins, routes of migration, and early history. Field parties have been at work in the Society Islands, Samoa, and the Tuamotus. Preliminary surveys were made also in Tirian, Rota, and Saipan of the Marianas Islands. Members of the Museum staff resident in Honolulu devoted their time to investigations based on the results of the Tanager expedition, the Whippoorwill expedition, and the cruise of the Kaimiloa. During the year six bulletins relating to Pacific ethnology were published.

UNITED STATES

Indian Languages.—Professor Edward Sapir of the University of Chicago is convinced of the identity of the language of certain Indian tribes with that of the primitive Chinese. By a close comparison of the primitive Chinese, Siamese, and Tibetan, all in the same language category, with the "Nadine group" of North America, he finds the same peculiarities of phonetics, vocabulary, and grammatical structure on both sides of the Pacific Ocean. Dr. Sapir has discovered not only that the Nadine groups speak with a tonal accent, raising or lowering the voice to give certain meaning to words, in a manner similar to the tonal peculiarities of the early Chinese, but also that the meanings of certain words are identical. He has disclosed further that the Indians have retained certain prefixes and suffixes which long ago have disappeared from the Chiese speech, but which are clearly discernible in the early forms. Indians speaking the language of the Nadine group are found in all parts of North America as far south as northern Mexico. This linguistic similarity forms another link in the chain of evidence showing that America was peopled from Asia by way of the Behring Strait.

Connecticut.—Carroll G. Alton of Peabody Museum, Yale University, conducted excavations on the site of the historic Mohegan Indian village located on Shantok Point which overlooks the Thames river, two miles south of Norwich. Several thousand artifacts were secured, some of which are aboriginal, others aboriginal but showing Colonial influence, and still others which are purely trade objects. Of especial interest are numerous bone awls, antler handles, long ribbone needles (highly polished and perforated), a rare bone fishhook, conch columns and fragments showing wampum in all its stages of manufacture, wampum stones, and pottery fragments. A fine collection of trade material was secured which includes many clay pipes, one brass pipe, iron and copper arrowheads, spoons, jews' harps etc. All of the above mentioned specimens were found in association with kitchen refuse consisting of oyster shells and animal bones.

Ohio.—The excavation of the Hopewell group of mounds has been completed and the material moved to the Museum of the State Archeological and Historical Society at Columbus where an entire room is devoted to this group. Director W. C. Mills began the excavation of mound number 2 of the Seip group in the Paint Creek valley, Ross county, the first of August. Before the season was over he brought to light a remarkable burial. The sarcophagus, which had been made of logs, contained three adults and two children and the burials were wrapped in a burial robe with designs painted in color over the whole; these robes had evidently been decorated with pearls from head to foot, the many thousands that were removed showing that they had been attached to the cloth.

The artifacts in the grave were also notable as many objects were made of tortoise shell; one especially interesting was that of a swan, beautifully cut. The burials were accompanied by copper objects of various kinds such as ornaments, large plates, axes, awls, and many objects covered with copper and silver, such as buttons, etc. The most interesting of the objects found were the large pipes made of stone. These pipes, the largest weighing seven and one-fourth pounds, were all effigies—that of the dog, bear, owl, and night hawk. An interesting feature of the finding of the pipes was that they were not placed directly in the sarcophagus, but above it.

Mills has begun the work of converting the Mound City group of mounds into a state park. The park, covering an area of 58 acres and containing some 30 mounds, is the gift of the United States to the Ohio State Archeological and Historical Society.

Southwest.—Mr. Neil M. Judd of the U. S. National Museum has completed his fifth season as director of the National Geographic Society's Pueblo Bonito Expedition. The outstanding feature of the past season's work is the definite establishment of a culture sequence based on the pottery found.

The Department of Archeology of Phillips Academy, Andover, has continued its work at Pecos.

Gran Quivira Pueblo and the Mimbres river valley have been the scene of important excavations under the direction of Dr. E. L. Hewett, director of the School of American Research.

Director C. C. Willoughby of Peabody Museum, Harvard University, reports the discovery of 254 burials in the Mimbres valley of New Mexico. A large collection of pottery vessels and a number of other objects were obtained. The decorations appearing upon the pottery are in general restricted to this area, and include many well drawn figures of birds, quadrupeds, fishes, etc. In northeastern Arizona, explorations were carried on in the Chinlee valley at Rock Point. About thirty small sites were examined. The remains found here seem to represent a transitional stage between the pre-Pueblo and Pueblo cultures. A short time was spent investigating the ruins in Tse-a-chong Canyon, southwest of Carrizo mountains. Several of the kivas, or ceremonial rooms, examined here were in an almost perfect state of preservation.

Nevada.—Among the most important of the recent investigations carried on by the Museum of the American Indian is that which was brought to completion during the year by Mr. M. R. Harrington in certain dry caves near Lovelock. These revealed many interesting objects from a deposit found to be fourteen feet in depth, built up in layers by successive generations of occupancy. The articles recovered indicate that the Indians had been attracted to the spot by reason of the proximity of Humboldt lake. Their chief subsistence was gained from wild plants, rabbits and other small animals, fish and ducks; agriculture was practiced on a small scale. Baskets, textiles, feather headdresses, implements of wood, stone and bone, well-made cordage, fishhooks, fishnets, entire dessicated fish, rabbit snares and decoy ducks are among the objects recovered from the cave deposits. The dead were wrapped with deerskin, with blankets made of muskrat skins, and with fishnets; they were covered with elaborately decorated bowl-shaped baskets made of coiled willows. An adult mummy and the mummy of a child were recovered.

Of at least equal importance was a subsequent research that led to the discovery and beginning of excavation of groups of pre-Pueblo ruins in Clark county, southeastern Nevada, which were scattered over an area several miles long. Many of the ruins lie in the valley, more or less buried in sand-dunes, but others are on the eroded ridges between the lowlands and the mormon mesa. The walls of the houses, averaging seven inches thick, are built of adobe "loaves" laid up with adobe mortar and sometimes interspersed with slabs of stone and the whole plastered with adobe. The floors are usually of adobe, but sometimes are paved with flat sandstone fragments, and, in some houses, slabs are set on edge against the base of the walls. Little of the walls are erect, but with the charred remains of roofs sufficient has been revealed to show that the structures were rectangular, evidently of a single story and with roofs made of poles covered with grass, or tules, and mud. The dwellings consisted of from one to four or five small rooms. Burials were made in the floors of some of the rooms after they were abandoned. Accompanying the dead were earthenware vessels and minor appurtenances.

LATIN AMERICA

Peru.—Dr. A. L. Kroeber, professor of anthropology at the University of California, who was entrusted by the Field Museum, Chicago, with a special mission to Peru for the purpose of determining stratifications of cultures, spent six months in Peru, chiefly excavating in the area from Lima south to Nazca, a stretch of 250 miles. His collection is particularly rich in fine pottery with painted designs, fabrics, and mummy bundles. The results are important and are being prepared for publication by the excavator. His report will be published by the Museum in the beginning of next year.

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SOCIOLOGY

BY HOWARD W. ODUM

PROFESSOR AT THE UNIVERSITY OF NORTH CAROLINA

Current Trends.—A survey of the year's contributions and events in the general field of Sociology indicates certain apparent tendencies. Some of these tendencies, are, of course, summations from the years immediately preceding and most of them are approximate only, but they give substantial evidence of current direction.

There is a decided tendency on the part of sociology to coördinate and correlate its work and research more effectively with the other social sciences and to draw upon them more and more for special data needed in the synthetic study of Society. Examples of this are abundant. One is the representation which Sociology has in the Social Science Research Council, composed of three members from each of the following societies: American Economic Association, American Political Science Association, American Sociological Society, American Statistical Association, American Psychological Association, American Anthropological Association, American Historical Association. Another is the participation of the American Sociological Society in the planning for an encyclopedia of social science and other coördinate efforts for social study and research.

There is, then, the coördinate correlation which comes from a similar attitude of the other social sciences to work more effectively with Sociology. Thus Sociology has tended to increase the variety of its approach to the study of society and the mass of its data until the number of students, teachers, and authors is constantly increasing and the amount of published material is little short of overwhelming. In the midst of this situation there is, therefore, a clearly evolving recognition of the essential problem involved in gathering, evaluating, assimilating and synthesizing this growing mass of new data now everywhere so hopefully and attractively being recruited.

Specialization. — There is fortunately another very definite tendency toward differentiation and specialization to the end that "specialisms" within the field are producing data and method for the scientific study of society such as has not yet been approximated. These specialisms extend to both major divisions of the subject and to concrete segments within these divisions, thus bringing about objective and descriptive studies of greater value and developing more effective method. The year has also brought about the beginnings of the process of integration and correlation, so that the results of the combined present tendencies give promise of a more and more scientific method and more comprehensive results in the whole field of sociology. Some of the examples of specialization and differentiation may be noted.

There is a group which is making special studies in the field of population with increasing emphasis upon the importance of biological factors. Among those are Pearl, Hankins, Huntington, East, Russell, Carr-Saunders, Reuter, Thompson, Woolston, Swinburn, and others. Closely related, and to some extent a part of this group, are those who are making special inquiries concerning the possibilities of race development through birth control, following the earlier beginnings of Ross. Another group including Wisler, Goldenweiser, Boas, Lowie, Huntington, Kroeber, Levy-Bruhl, Faris, Cole and others, have substituted concrete new anthropological materials for old terminologies, and have also contributed much data to the cultural or "superorganic" research and theory represented also by Ogburn, Tozzer, MacCurdy, Willey, Herskovits.

This group has also made important contributions to the current material on race, and along with Hankins and others have offset another group of students of race represented by Stoddard and Grant. There has also been a remarkable renaissance of interest in the Negro and of books dealing with specialized phases of his life and contributions, among which are those by Weatheford, Woofter, Johnson, Odum, Locke, Scarrboro, Kennedy, the Chicago Race Commission, with a half dozen more now in press. In the field of social psychology there has been a notable list including Allport, Bernard, Bogardus, Ellwood, Znaniecki and Williams.

The emphasis upon Sociology for teachers has produced volumes by Snedden and Peters and has resulted in a special group in the American Sociological Society annual meeting. Contributions to the study of the community begun by Hart, Lindeman, McKeever have been greatly augmented by Steiner, Bowman, Follett, McClanahan, and others. In the field of social work Gillen, Steiner, Tufts, Eliot, Abbott, Breckenridge, Queen and others have added important works, while to the study of social problems Parson, Beach, Baker-Crothers, Hudnut, Dow and others have added volumes, exclusive of more elementary texts by Ross, Hart, Keller, Marshall, and a score of studies of citizenship. In the field of history, theory and method, excellent contributions have been made by Giddings, Barnes, Chaddock, Small, Hankins, Chapin, Thomas, Douglas, Spykman. There has been, finally, an increasing number of volumes on general "sociological" subjects and on evolution and religion, many of which have come within the field of sociology.

Research.—An important tendency has been that which emphasizes social research, in which the American Sociological Society has taken an important part. Definite divisions of the annual meeting have been devoted to reports on research problems, projects and methods, while during the year the Society has kept the emphasis constantly upon recruiting personnel, reports, and materials. There has been a large increase in the number of university groups which are devoting themselves to social research. Among the new special Institutes for Research or other special organized efforts for research in which sociological problems are attacked are those at Chicago, Columbia, Harvard, The Robert Brookings Graduate School, North Carolina, Yale, Brown, Iowa and Minnesota. Of special importance in this respect are the fellowship for mature research students offered by the Social Science Research Council through a grant from the Laura Spelman Rockefeller Memorial and those of the Guggenheim Foundation. During the year a total of approximately one hundred such fellowships will be available. Other special efforts and conferences have been held, such as those promoted by the Commonwealth Fund for the consideration of the social studies. Important grants and experiments have been made by the Memorial and Commonwealth Funds for child welfare and public welfare, and other aspects of social work, in many cases having the first steps based upon research and study.

LITERATURE

Periodicals.—One of the most encouraging, and yet most baffling of the year's developments, has been the increase of articles dealing with social subjects and appearing in popular periodicals and scientific periodicals. The *American Journal of Sociology* abstracted during the calendar year some four hundred and seventy articles, selected from 115 periodicals of which 25 were foreign, in addition to more than a hundred additional articles in the popular periodicals. The main classification is the general headings of: Personality; The Family; Peoples and Cultural Groups; Conflict and Accommodation Groups; Communities and Territorial Groups; Social Institutions; Social Science and the Social Process; Social Pathology; Methods of investigation; and General Sociology and Methodology of the Social Sciences. This large volume of "sociological" discussion is evidence of the need for sociologists to work out a more scientific method for assimilating and synthesizing the vast amount of evidence constantly submitted. To some extent the more technical sociological journals are succeeding in this respect but in a less complete manner than for instance in History, Economics, or Psychology. The chief scientific papers continue to appear in *The American Journal of Sociology* (Univ. of Chicago); *The Journal of Applied Sociology* (Univ. of Southern California); *Social Forces* (Univ. of North Carolina); *The Proceedings of the American Sociological Society; The Survey* (N. Y.). Other specialized periodicals dealing with special social problems are *Opportunity: A Journal of Negro Life* (N. Y.); *The Family* (N. Y.); *Hospital Social Service* (N. Y.).

Books.—Among books must be classed a great mass of so-called sociological literature, some of which is good, much of which is worthless or worse. In 1925 sociological books rank next to fiction and religion in the number of annual volumes. Closely allied are books dealing with the subject of religious experience, and especially the evolution controversy (more than seven hundred in all) many of importance to the sociologist. During the year in the entire field *Social Forces* has reviewed or noted more than four hundred and fifty volumes.

Publishers are interested in scientific series, through which the best authors may contribute to the more technical and scientific literature of sociology. No less than eight such sociological series have been planned or begun during the year. Thus, while the year has not produced many outstanding texts it has laid the foundations for a renaissance in social theory and specialized social science.

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SOCIOLOGY APPLIED TO HISTORY AND GOVERNMENT

By Malcolm M. Willey and Stuart A. Rice
Professors at Dartmouth College

Point of View.—It is clear that when sociology makes a contribution to history, government and the other social sciences, this contribution is in the form neither of a body of specific subject matter which the latter can take over, nor in the form of a methodology available for their use. It is rather a point of view, applicable to the special problems arising in the older fields. A vast amount of literature has appeared during the past year exemplifying this point of view. Outstanding, because of breadth of scope and detail of treatment, are two volumes issued through the efforts of Harry Elmer Barnes. The first, *The History and Prospects of The Social Sciences*, written by twelve eminent authorities and edited by Professor Barnes, traces the relationships among the various social sciences; the second, *The New History and the Social Studies*, by Professor Barnes himself, covers the same ground in more detail, and includes extensive bibliographical data. In both volumes there is clearly the recognition that a social viewpoint, developed and stressed by the sociologists, is essential in all of the special fields. Relating to history, Professor Barnes phrases it: "In attempting to indicate the nature of sociology and its relation to history . . . it will suffice to state that in the first place, sociology assumes at the outset the premise, which it has well established by inductive historical study, that human life and culture have developed in a group setting. . . . This assumption does not carry with it the doctrine of complete group determinism . . . but sociology does insist that, however much must be allowed for individual initiative, human progress has been more sharply conditioned by its social setting than by any other cause operating upon the life of man." It is this *viewpoint*, which has been growing rapidly and unmistakably, that is the outstanding contribution to the field of history; and it is the recognition of its validity that is already changing the writing of history, as shown in the works of such men as Charles A. Beard, Arthur M. Schlesinger, James T. Shotwell, James Harvey Robinson and others of the same school. Albion W. Small in his recent *Origins of Sociology* (1924) also develops clearly the interrelationship between the two fields of study, and shows the reactions of each upon the other.

Government. — This view extends to the field of government where it leads to a challenge of much of the older political philosophy. For example, the theory of state sovereignty is being questioned by those who utilize the sociological approach. Professor W. Y. Elliott formulated this issue in an article, "Sovereign State or Sovereign Group" (*Am. Pol. Sci. Review*, August, 1925). The influence of sociology is seen in a position rapidly gaining adherents which is stated as follows: "Like the universe itself, the state is ultimately a pluralistic arrangement of group forces, among which government, at its most absolute, can arrange but a temporary and tolerable resolution."

Evidence of this permeation is found in the growth in the last two years of a new publication, *Social Forces*. Although sponsored by the department of sociology of the University of North Carolina, and edited by Professor Howard Odum, head of that department, the scope of this journal, as indicated by the range of material covered, has been greatly enlarged beyond that of the older *American Journal of Sociology*, the official publication of the American Sociological Society. It carries as a regular feature a "Department of Government, Politics and Citizenship." In addition to this and to numerous general articles, of interest to those whose primary fields of research and study are history and government, is the large number of books within these associated fields regularly reviewed in the book section of the publication. This indicates on the one hand that many of the newer books on history and government have become of interest and concern to sociologists; on the other, that these books are being tinged sufficiently with a sociological viewpoint to warrant their inclusion in a sociological journal.

Graduate Work.—The same trend is shown in a similar manner by the character of the theses submitted for advanced degrees in the graduate schools. Not only do many of those within the departments of sociology include an analysis of historical materials, but the obverse is likewise true: theses submitted in departments of history and government increasingly rest upon a sociological orientation. "Dissertations in Sociology" (*Am. Journal of Sociology*, Sept., 1924); "*Doctoral Dissertations in* Political Science" (*Am. Pol. Sci. Review*, Feb., 1925); "List of Doctoral Dissertations in Preparation in American Universities" (Carnegie Institution, Department of Historical Research, Dec., 1924).

Science of Politics. — In government this enlargement of the bases of theory has assumed organized form. "Political Science" has in the past been based primarily upon *assumptions* concerning the nature of man and his institutions. As such it would have been more accurately described as "political philosophy." The newer sociological tendencies are shown by the desire of a number of political scientists to develop a "science of politics." This led to the calling in 1923 of a "national Conference on the Science of Politics," and a second conference at Chicago, September 8-12, 1924. Organized on a round-table basis the sessions were continued at the Christmas meeting of that year of The American Political Science Association, while a third annual conference was held in New York, September 7-11, 1925. Again the round-table sessions were continued December 28-30, 1925, at the meeting of the older organization. The point of view animating the participants in these conferences has been essentially sociological. Their aspiration has been to measure the forces involved in political alignments, political behavior, and political institutions generally. These forces, it is recognized, are essentially social, and attention has therefore been thrown back upon the social groupings out of which the political life of the nation has evolved.

Political Organization.—One of the leaders and chairman of its round-table on political statistics, Professor Holcombe of Harvard, has exemplified the social attitude toward politics in his book, *The Political Parties of Today* (1924). The thesis of the author developed with reference to the entire history of parties in the United States is that social groupings, primarily economic in origin, determine political alignments and political behavior. A similar approach is employed in a number of books and articles appearing in the past year: Merriam and Gosnell, *Non-voting* (1925), is a study of the neglect by half of the eligible voters of the city of Chicago to take part in an election. Stuart A. Rice, a sociologist, in *Farmers and Workers in American Politics* (1924), has shown the necessity for examining socially inherited group-*mores* as a basis for an estimate of the probabilities of farmer-labor coöperation. Seba Eldridge in *Political Action* (1924) adds a further contribution, as does a still later book by Professor Merriam, *New Aspects of Politics* (1925). Two articles in the *American Political Science Review*, August, 1925, "Rainfall and the Populist Party in Nebraska," by John D. Barnhart; and "Sectionalism in Congress (1870-1890)," by Hannah Grace Roach, develop explanations in sociological terms of some of the important political events of the first fifty years. It is doubtful if any of these would have been written except under the impetus of the sociological point of view. A similar motivation is dominating the work of Professors A. B. Hall of the University of Wisconsin, John A. Fairlie of the University of Illinois, Victor J. West of Stanford, Arthur Macmahon, Raymond C. Moley and Joseph McGoldrick of Columbia, Ben A. Arneson of Ohio Wesleyan, Erwin F. Meyer of Colorado College, Harry A. Barth of the University of Oklahoma, Phillips Bradley of Amherst, and numerous other political scientists.

University Schools and Institutes.—The most outstanding illustration of the deliberate attempt to base political theory upon a sociological foundation is afforded by the work of the recently established School of Citizenship and Public Affairs at Syracuse University (1924). Under the leadership of William E. Mosher, its director, and Floyd Allport, the psychologist attached to the staff, a series of experiments in the character, formation, and operation of public opinion are being carried on. The results of this series of experiments, as yet unpublished, will undoubtedly prove of outstanding significance for the future development of a science of politics.

Similar implications may be found in the work of a number of other established organizations. The Institute of Politics at Williamstown, Mass., meeting July 23 to August 22, 1925, had as the topic of one of its round tables, "Agricultural and Population Increase," in charge of Professor E. M. East, of Harvard. The problem involved is one of the most familiar in sociological discussion.

The Social Science Research Council during 1925 granted fifteen research fellowships for the coming year. The integration of the social studies is well illustrated by some of the projects for which grants were awarded. Thus, Dr. Thomas P. Martin, Associate Professor of American History at the University of Texas, has as his problem *A Study of Anglo-American Relations as Influenced by Economic, Political and Social Forces Playing Within and Between the Two Peoples.* On the other hand, an assistant professor of Sociology, Dr. Mildred D. Mudgett of the University of Minnesota, is studying *Legislation Affecting the Pre-School Child in Certain European Countries.*

The National Council for Social Studies met February 21-25, 1925, in Cincinnati. Standards were recommended for the high school teaching of history, government, economics and sociology under a plan of close coordination. That the integrative tendencies represented by these proposals are operating likewise in higher institutions is shown by the organization of a joint research committee of the social science departments of the University of Chicago.

The past year has given added assurance to those who have perceived for a number of years a coming breakdown of hard and fast lines between the various social sciences and the permeation of all of them by the generalized point of view which can best be described as sociological, and which is the culmination of the researches and analyses of two generations of sociologists.

MENTAL TESTS AND MEASUREMENTS

By Rudolph Pintner
Professor at Teachers' College, Columbia University

Present Status of the Testing Movement.—The past few years have seen the gradual acceptance of psychological tests as useful tools in education, business and industry. From the early beginnings of the movement, when tests were in general held up to ridicule, we have passed, through the period of their proclamation by misguided enthusiasts as the solution of all racial and educational ills, to the present time, where tests are beginning to find their rightful place in school and society. Their immediate value as a tool for classification in school, college, office and shop is beginning to be understood by the well-informed. They are not expected any longer to perform miracles. They are recognized as an outcome of the advance of the science of psychology in its attempt to measure the reactions of individuals to the various stimuli that surround them. Looked at from this standpoint, it is very obvious that the several tests so far constructed are woefully few in number and very crude as measurements of precision. We may confidently expect, therefore, much work in the future which will enlarge the field of measurement and at the same time make the measurement itself more exact.

Such results as have been obtained up to the present time by intelligence tests in schools and by the testing in the army during the war have occasioned much discussion during the past year both in scientific and popular journals. The argument would seem to center round the question as to whether our tests are testing native intelligence, pure and simple, uninfluenced by environment; or whether they are mere tests of acquired knowledge. Is there such a thing as intelligence which is inherited? Apart from grossly feebleminded people and geniuses, are not all the differences in intelligence as measured by our tests directly due to differences in environment and opportunities for education?

We have here once again an aspect of the age-old and futile discussion of the importance of environment as against the importance of heredity.

Those who believe in the dominance of the former are inclined to belittle the results of intelligence testing. The superiority of the intelligence ratings of well-to-do as compared with poor children, of city as compared with country children, of white as compared with negro children, is wholly attributed to differences in educational opportunity. Those who believe in the dominance of heredity claim that such superiority is largely, if not wholly, due to inherited native ability. The champions of Nordic superiority have tried to use the results of intelligence testing in support of their claims. The self-appointed guardians of democracy have assailed the tests as undemocratic and odious in the distinctions they are creating among children, and would seem almost to regret the aid they are giving in fitting education to the needs of the individual child. While such general discussions of the final implications of the testing movement are always amusing and at times stimulating, it is fortunate that they have not interfered with the steady growth of test construction and test application.

Types of Intelligence Tests.—Recent work in measurement shows an increase in the different kinds of tests. We may make a rough division of tests into three kinds: (a) Intelligence, (b) Character, (c) Achievement. Under the heading of intelligence we include all the group and individual tests for measuring general capacities of different sorts. Among individual tests the Binet-Simon type of test is still dominant, although the latest so-called "Revision" of this scale, namely, the Herring Revision (1922), departs quite decidedly in method of computing mental age from the original Binet Scale. Further evidence of work with the Binet Scale is found in the appearance of a new revision of the Yerkes Point Scale (1923) and also a new revision of the Kuhlmann Tests (1922). The scope of the Binet Tests has recently been increased by an adaptation of the Stanford Binet Scale for blind subjects (1923).

With reference to individual tests not of the Binet variety we notice an increased interest in performance tests. This is probably due to the expansion of our concept of intelligence. General intelligence may be conceived of as ability to learn or adapt to all sorts of situations. So we may assume at least three kinds of intelligence, namely abstract, concrete and social. The Binet type of test is thought of as testing primarily the abstract type of intelligence. There is therefore need of other types of tests, such as performance tests in order to measure concrete intelligence. No new performance scale has recently appeared, but the tests forming part of the Pintner-Paterson Performance Scale have frequently been used either as units or in new groupings. It would seem that this concrete intelligence as tested by performance tests is positively related to abstract intelligence. Several new performance tests have been constructed and more or less standardized as separate individual tests.

Tests for Young Children.—Perhaps the most striking and original development in this field of individual testing has been the recent interest in the construction of tests for very young children. Up to recent times the only tests for infants below three were contained in Kuhlmann's Revision of the Binet. Recently many workers have turned their attention to tests for infants and we may now say that we are at present in the midst of active work in this field. Already there are numerous tentative tests and norms. Of particular importance in this connection is the work of Woolley at the Merrill-Palmer School, the work of Baldwin and Stecher at Iowa and the work of Gesell at Yale. None of these scales or series of tests lays claim to the same degree of accuracy in mental measurement as does the Binet series for school children. This interest of the psychologist in tests for the very young child is part of the general interest in child welfare and pre-school education. The tests form merely one aspect of the general study of the total behavior of the young child, as it is being now studied in several institutes of child welfare, where we find the psychologist, psychiatrist, physician, dietitian, social worker and educator coöperating in a thorough study of the child from birth to school age.

Group Intelligence Tests.—So far we have been describing individual intelligence tests, i.e., tests given to one subject at a time. When we turn to group intelligence tests, we find that, although they have been used enormously in schools and colleges, very few new tests have been constructed during the past year. The frequent complaint that there are too many tests on the market may have been heeded by the test makers. The most noteworthy new test of the past year is the McCall Multi-Mental Test. It differs from the usual group test in as much as it demands only one type of reaction on the part of the subject throughout the whole test. It lays claim to be as good a measure of intelligence as the more elaborate group tests now in common use.

Levels of Intelligence.—The most important work now being done in intelligence testing is the research work carried on by Professor E. L. Thorndike of the Institute of Educational Research at Teachers' College, Columbia University. A series of intelligence scales are being constructed by means of which various levels of intelligence can be measured and these levels will increase in difficulty by equal steps. Two of these scales are already available and the others, together with a book describing the work, will appear early in 1926.

Character.—The second purpose of tests is to test character. In the field of testing for character qualities, emotional make-up, personality qualities and such other similar aspects of personality not included strictly under intelligence, there continues to be great interest and activity. Special research work in this field is being done by Drs. Hartshorne and May in the Institute of Educational Research of Teachers College, Columbia University. No tests have as yet been published by them.

Terman in his work on gifted children has modified and made use of several character and personality tests. He bases his tests on those originally devised by Voelker, Cady, Raubenheimer, Woodworth and Knight. We therefore have a new set of tests as follows: Overstatement, Reading Preferences, Character Preferences, Social Attitudes, Trustworthiness, and Emotional Instability. These tests have been given to over a thousand gifted and normal children from age seven to fourteen. In addition an extremely interesting test for determining intellectual, social and activity interests has been experimented with.

All this work on the testing of character, temperament and personality is as yet in the experimental stage, and the tests cannot be used by teachers and others for routine work as can our intelligence tests. Nevertheless, there is now no doubt that reliable and objective tests for several character qualities will be available in a very short time, and thus a measurement of qualities, long held to be too intangible for measurement, will be attained.

Achievement.—The third method concerns itself with achievement. Tests of achievement attempt to measure definitely how much a child has accomplished in a certain subject. They are a measure of the influence of the school upon the child. They show how successful the school has been in making those modifications which it set out to make. Recent activity in this field has been great. In addition to tests covering broad fields such as reading or arithmetic, there is a marked tendency to construct tests for much narrower aspects of such subjects. Thus we have Gates' Word Pronunciation Test, the Detroit Word Recognition Test, Gates' Reading of Directions Test, the Whipple High School and College Reading Test, seven tests by Logasa and McCoy for measuring appreciation of Literature, the N. Y. Survey Tests of English Grammar and English Usage. In arithmetic we have the Woody-VanWagenen Tests of the fundamental operations in arithmetic arranged for different grades, also the Buswell Arithmetic tests for diagnosing the particular difficulties of each pupil, and the

Stevenson Problem Analysis Test in Arithmetic. That the field of achievement testing is a very wide one can be seen by the following recently published tests: Michigan Botany Test, Cooprider Biology Test, Dvorak General Science Tests, Illinois Information Test on Foods, Hutchinson Music Test, Gates-Strang Health Knowledge Test, and the Schorling-Sanford Plane Geometry Test. Unquestionably other achievement tests have been published which have not come to the writer's attention.

It is obvious that there is a large demand on the part of teachers for standard tests for all subjects taught in schools. Very little is now taught in schools that cannot be measured with more or less accuracy by standard achievement tests. Such tests lead to a better knowledge of what is being accomplished. They allow a comparison of one school system with another. The extent of some of the testing programs can be envisaged by the nation-wide testing project in Arithmetic Problem Solving, English and Reading now being conducted by the Public School Publishing Company in which over 400,000 pupils in all parts of the United States are enrolled.

Some Uses of Tests.—The routine use of tests by schools, clinics, factories and the like need not be mentioned here. Doubtless millions of individuals have been given standard tests of some sort during the past year. We can only mention in this article some of the outstanding pieces of work.

Terman and his co-workers have reported on their investigation of one thousand gifted children. All of these children had intelligence quotients of 130 or over, and intellectually they fall well within the top one per cent. of the school population. The ratio of boys to girls is greater than that found in the population in general, and the Jewish race contributes about twice as many as the average. These children were given physical and mental tests of all kinds and compared in every case with a control group of average children. The superiority of the gifted group is an all-round superiority showing up on physical, intellectual, volitional and character traits of all kinds. Gifted children are not sickly, eccentric prodigies with abnormally developed talents along specific lines. They are on the contrary regular boys and girls with healthy play interests and an active play life.

The importance of this investigation lies in the fact that it gives us for the first time accurate measures of the difference between normal and gifted children in traits other than the purely intellectual. It is not based upon opinion, but upon objective tests of measurable traits. A great many of the newer character tests are made use of. This book will unquestionably have a profound influence upon the attitude of society toward the gifted child. It shows that there are many such children in the world; it shows how they can be discovered and that they possess an abundance of desirable traits, physical, mental and moral. What is the kind of school for them and what is society going to do about it? How shall these children be educated so that they may contribute their best to the welfare of society? This is the challenge that Terman's important work presents.

College Tests.—The interest of colleges and universities in intelligence tests as a means for appraising the mental caliber of their students is everywhere growing. In many such institutions an intelligence test of all new students is now taken as a matter of course. The work done at Columbia has been described fully by Wood. He describes not only the intelligence test but also the new type of objective content examination. "One of the greatest advantages," he says, "of the intelligence test is that it enables the administration to adjust academic load to individual capacity." Many are saved from failure and discouragement and the superior students are given opportunity to use their superior intelligence. In addition to the use of an intelligence test for all students, there is a growing interest in a broader study of the student and what may be described as college personnel work is rapidly increasing.

Vocational Tests.—In the selection of individuals for various jobs, combinations of intelligence and achievement tests of all kinds are being used. The Bureau of Public Personnel Administration, Institute of Government Research at Washington, in the pages of its journal, *Public Personnel Studies,* has published suggested tests for the following positions: Janitor, Bacteriologist, Library Assistant, Painter, Automobile Driver, Pathologist, Playground Supervisor, Road Inspector, Plumber. These examinations make use of the standard intelligence tests in conjunction with newly devised trade or achievement tests for the various occupations.

Tests of abstract intelligence and knowledge of the job may not be sufficient for the selection of proper individuals. In the work of Vitales with street-car motormen we have an example of a different kind of test, in which the individual is measured as to his ability to learn the specific kinds of reactions which are required for his job.

Summary.—We may summarize by noting that both in the field of test construction and application the past year has been very fruitful. The test makers are fully aware that much yet remains to be done in the perfection of the instruments of measurements in those fields where such instruments now exist. There are many aspects of human personality that have not yet been measured, and research as to the possibility of such measurement is proceeding apace. We note also the widespread use of all the instruments of measurement in school and industry. They are evidently serving a very definite purpose and are helping in the solution of important problems.

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STEDMAN, L. M.—*Education of Gifted Children.* Yonkers, World Book Co., 1924. Shows what was accomplished in the education of certain gifted children.

TERMAN, L. M.—*Genetic Studies of Genius,* Vol. I. Palo Alto, Stanford University Press, 1925. A study of the mental and physical traits of one thousand gifted children.

WOOD, B. D.—*Measurement in Higher Education.* Yonkers, World Book Co., 1923. An account of the use of intelligence tests in college.

PART SEVEN
THE HUMANITIES

DIVISION XXXV
AMERICAN LITERATURE

INTERESTS AND TESTS

By J. Duncan Spaeth
Professor at Princeton University

Field.—The following article is primarily a survey of work by American authors in the field of belles lettres during 1925, but in the case of outstanding writers occasional reference is made to books that have appeared since 1919. It is impossible to draw a strict line of demarcation between "belles lettres" on the one hand, and history, philosophy and science, natural, political, social, on the other. Biography and autobiography have frankly been considered as "literature" along with fiction, poetry, essays, and in other fields books of distinct literary merit have been included when not addressed exclusively to the professional scholar. The survey is necessarily partial but it aims to present a cross section of contemporary American literature including "best sellers" as well as books that are caviare to the general. The brief comments aim to characterize rather than to appraise.

Public Taste.—There seems to be a consensus of opinion among publishers that the standard of public taste in books has undergone a notable change for the better in the last ten years. The *Publishers' Weekly* regularly reports fifteen best selling novels and fifteen best selling non-fiction books. Before the war, a sale of over 20,000 for a non-fiction book was very rare. Within recent years, hundreds of thousands of copies have been sold of such books as Wells' *Outline of History,* Walter Page's *Letters* and Papini's *Life of Christ.* The head of a large publishing firm writes: "Since the war, the American public has clearly been reading for background—outlines of history, outlines of science, biographies, volumes of letters and popularized science. The intellectual ferment and self-questioning attitude reflected in this change of reading habit has also been reflected in the large sales of realistic American novels." Three or four years ago, the interest in "realism" of *Main Street* type as opposed to "romanticism" was at its height. To-day there is a reaction as exemplified by the vogue for Sabatini, E. Barrington and such good mystery stories as *Beau Geste,* by Percy Wren. Biography and autobiography have been making tremendous inroads on fiction, in popular favor, though to be sure the newer biography is itself a kind of fiction—*Wahrheit und Dichtung*—as in Maurois' *Shelley,* J. Lucas-Dubreton's *Pepys,* Barrington's *Nelson* and *Byron* (*Glorious Apollo*), Klabund's *Peter the Czar,* and Werner's *Brigham Young* and *John L. Sullivan.*

A well known publisher says: "Ten years ago the national magazines had not reached the state of wide circulation that they have to-day. The public that wanted Zane Grey and Harold Bell Wright still exists today; but this public can buy its product cheaper in the form of big national monthlies and weeklies. Furthermore, magazines having a larger purchasing power than book-publishing companies, can more or less dictate to the author the style of story demanded. Of course, there are important exceptions, and ephemeral books are occasionally bought in large quantities. The outstanding example is, I believe, the sale of *The Sheik*, which is supposed to have sold over 400,000 copies at $2.00 and the same number at 75 cents, and Mrs. Rinehart's *Red Lamp*, a thrilling mystery story (1925), is said to be near the million mark.

No doubt such book lists as the A. L. A. and the Atlantic Monthly Book Shops have their effect on the public taste.

Literary Periodicals.—A notable development in American journalism is the growing importance of the weekly Book Review Section of some of the big metropolitan dailies. Among the most important weekly literary reviews are the *New York Times Book Review* (very influential on account of its wide circulation; Simeon Strunsky's page is always worth while), *The Saturday Review*, N. Y. (Henry Seidel Canby, William Rose Benét, Amy Loveman, Christopher Morley), growing in importance, unconnected with a daily newspaper, and founded after the purchase of the *N. Y. Evening Post* by the Curtis interests had set Mr. Canby and his associates free to start an independent review. The *Boston Evening Transcript Book Review*, the *N. Y. Herald Tribune's* "Books" section (Stuart P. Sherman), *The Chicago Daily News* (Harry Hansen), *The New York World* (Heywood Broun, Stallings), *The New Republic*. Among monthly reviews *The Atlantic Monthly* (conservative), *The American Mercury* (radical; Menckenized criticism), *The Literary Digest International Book Review* (eclectic), and among the scholarly reviews *The Yale Review, The Dial, The Virginia Quarterly Review* (new, 1925), and *The Reviewer* (University of North Carolina Press) are most noteworthy.

Literary Prizes.—The following prizes in various fields of American literature have been awarded since 1919:

Pulitzer Prizes, Excluding History and Drama

In 1919—Novel: Booth Tarkington, *The Magnificent Ambersons.* Biography: Henry Adams, *Education of Henry Adams* (Houghton, Mifflin, 1918).

In 1920—Biography: Albert J. Beveridge, *Life of John Marshall* (Houghton, Mifflin, 1916-19).

In 1921—Novel: Edith Wharton, *Age of Innocence.* Play: Zona Gale, *Miss Lulu Bett.* Biography: Edward Bok, *Americanization of Edward Bok* (Scribner).

In 1922—Novel: Booth Tarkington, *Alice Adams.* Biography: *Daughter of the Middle Border.* Verse: E. A. Robinson, *Collected Poems* (Macmillan).

In 1923—Novel: Willa Cather, *One of Ours.* Biography: B. Hendrick, *Life and Letters of Walter H. Page.* Verse: *Ballad of the Harp Weaver, A Few Figs from Thistles*, and a *Miscellany*, by Edna Millay.

In 1924—Novel: Margaret Wilson, *The Able McLaughlins.* Biography: Michael Pupin, *From Immigrant to Inventor.* Verse: Robert Frost, *New Hampshire.*

In 1925—Novel: Edna Ferber, *So Big.* Biography: M. A. DeWolfe Howe, *Barrett Wendell and His Letters.* Verse: Edwin Arlington Robinson, *The Man Who Died Twice.*

Helen Haire Levinson Prize

($200.00) for a poem or group of poems by a citizen of the United States.

Awarded in 1919—H. L. Davis, *Primipara.*

In 1920—Wallace Stevens, *Pecksniffiana.*

In 1921—Lew Sarett, *The Box of God.*

In 1922—Robert Frost, *Witch of Coös.*

In 1923—Edwin Arlington Robinson, *Advenel Gray.*

In 1924—Amy Lowell, *Evelyn Ray.*

Nation's Poetry Prize ($100.00)

Awarded in 1921—James Rorty, *Prelude: When We Dead Awaken;* Roy Helton, *May Jones Takes the Air.*

In 1922—Gwendolen Haste, *The Ranch in the Coulee;* Martin Feinstein, *In Memoriam.*

In 1923.—Stephen Vincent Benet, *King David.*

In 1924—Scudder Middleton, *Jezebel.*

In 1925—Eli Siegel, *Hot Afternoons Have Been in Montana.*

The Prize ($100.00), A Token of Appreciation for Good Work by a Young Poet, and Offered Anonymously by a Poet.

Awarded in 1919—Mark Turbyfill, *Poems* (1917-18-19).

In 1920—Maurice Lesemann, *A Man Walks in the Wind.*

In 1921—Hazel Hall, *Repetitions.*

In 1922—Robert J. Roe, *A Sailor's Note-book.*

In 1923—H. Stuart, *Poems.*

In 1924—Marjorie Meeker, *A Dialogue and Lyrics.*

In 1925—George H. Dillon, *Preludes.*

The Pictorial Review, Famous Players-Lasky Corporation and Dodd, Mead & Co. prize ($13,500).

Awarded in 1925—Martha Ostenso, *Wild Geese.*

FICTION

BY J. DUNCAN SPAETH

PROFESSOR AT PRINCETON UNIVERSITY

General.—In volume the output of fiction exceeds all other forms of literature together. There is evidence of a reaching out for newer and freer forms as well as for fuller content in the novel. Edith Wharton and Sherwood Anderson have both written interestingly of their art.

The novel of manners, of ideas, of adventure, of psychology, new and old, of satiric realism, of sophisticated romance, of naïve sentimentalism, the regional novel, the historical novel, the mystery novel where plot is all, and the impressional novel where plot is nothing—each kind is represented, and representatives of each kind will be found in our list.

Novels.—Outstanding novels of the year are: Sinclair Lewis' *Arrowsmith* (Harcourt, Brace), Sherwood Anderson's *Dark Laughter* (Boni & Liveright), Willa Cather's *Professor's House* (Knopf), Anne Parrish's *The Perennial Bachelor* (Harper), Christopher Morley's *Thunder on the Left* (Doubleday, Page), Ellen Glasgow's *Barren Ground* (Doubleday, Page), Joseph Hergesheimer's *Balisand* (Knopf, 1924), James Boyd's *Drums* (Scribner), Edith Wharton's *A Mother's Recompense* (Appleton). In *Arrowsmith,* Sinclair Lewis continues to work with a more mature mind and a surer hand the vein of satiric realism opened in *Main Street* and *Babbitt.* *Main Street* stripped the false glamor from the idyllic picture of the rural community that was one of the heirlooms of the sentimental tradition. *Babbitt* exposed the shabby sentimentality of the commercial booster in the booming cities of the Middle West. In *Arrowsmith* the educational ideals of the college Babbitts are subjected to ironic scrutiny. Much of the scene is laid in the medical school of a Mid-western State University, a composite picture rather than a photograph, but the character of Max Gottlieb, whose religion is the relentless pursuit of truth in his laboratory, stands out in clear relief against the motley company of human, all too human, compromisers that crowd the stage.

The story of Arrowsmith himself is the story of a tragic conflict told with remarkable power. Sinclair Lewis is too anxious to prove his point to write "mere literature." His characters prove what he wishes them to prove. His genius is critical. Like Bernard Shaw, he conceals beneath his ironic exterior a burning passion for reality and a blistering scorn for cant and make-believe. In *Arrowsmith* there is more solid workmanship and more concentration of purpose than in any of his previous books.

Sherwood Anderson's *Dark Laughter* is a much more fundamental challenge of current values, because it delves beneath the very foundations of our conventional social structure. *"Dark Laughter,"* as Henry Seidel Canby says with penetration, "is not white laughter, civilized laughter. Sherwood Anderson is not an adept in civilization. In American literature he is opposite to the metaphysical Emerson, the moral Howells, the crafty Hergesheimer and very different from his nearest of kin, Mark Twain." But it is surely Walt Whitman who is Anderson's nearest of kin. The only American writer who could see, in fact did see, New Orleans as Anderson did, is Whitman. Mr. Canby continues: "His imagination is engaged by the instinctive emotions and in this concentration he is more penetrating and more profound than any contemporary writer in this country. . . . It is the world of dark laughter only, but he carries us so far into its dangerous marches that he will have to be reckoned with as one of the pioneers of the imagination." Anne Parrish's *Perennial Bachelor* is more finished in literary form than *Dark Laughter* or *Arrowsmith.* Its canvas is more restricted and reproduces with charming fidelity moving surfaces of life. The scene is laid in and about Wilmington, Del. (the scene of Henry Seidel Canby's *Our House,* 1919), and its theme is the frustration of the lives of three sisters in their devotion to their brother. It is an American *Old Wives' Tale* with more kindliness and humor and sentiment than Arnold Bennett's masterpiece. It depicts the changing manner of life from 1850-1925 from Mid-Victorianism to Modernism. Miss Parrish's craftsmanship is of a high order; it is a novel of manners rather than of ideas; her forte lies in pathos rather than in tragedy, sentiment rather than passion, delicate irony rather than boisterous humor. Willa Cather's *Professor's House* has not the unity and artistic perfection of her earlier *Lost Lady,* nor the breadth of *O Pioneers* and *My Antonia,* that brought her into the front rank of American novelists. But it is a penetrating and subtle study of the character of the professor and his family. In *Thunder on the Left,* Christopher Morley, well known as essayist and humorist of the *Bowling Green,* enters the rank of the novelists. His novel shows him not only as a master of style but as creator of character and prober into the mystery of life.

Historical Novels.—In *Balisand,* Hergesheimer returns to the historical novel. It deals with the period after the Revolutionary war, and the political fight between the Federalists and the Republicans is vividly portrayed. Mr. Hergesheimer stands near the top of modern English writers of fiction in his command over the resources of language. He is colorist and artist and his portraits glow with the tints of life. Another striking historical novel is James Boyd's *Drums,* a vivid study of the Revolutionary days in the Carolinas, and of the conversion of a young Scottish-American from Loyalist to Patriot. Other historical novels worth mentioning are: *We Must March,* Honoré Willsie Morrow (Stokes), the story of Marcus Whitman and the winning of Oregon; *Samuel Drummond,* Thomas Boyd (Scribner), a story of the soil—a farm in Ohio—the Civil War and the victory of a cause that means the defeat of an individual who fought for it.

Regional Novels.—Among the "regional" novels of the year the following are noteworthy:—*The Kenworthys* (Middle West), by Margaret Wilson (Harper), is not as distinguished as her prize-winning *The Able McLaughlins,* but proves she is not a "one-novel" author. Martha Ostenso, *Wild Geese* (Dodd, Mead) Prize Novel (Northwest). Walter Meilenberg, *Prairie,* a novel of the pioneer Middle West, a symptom of the reaction against *Main Street,* and Spoon River realism; an effort to portray the enduring and significant factors in the cycle of the elementary experience of the race. Elsie Singmaster, *Bred in the Bone* (Houghton, Mifflin) in a series of Pennsylvania Dutch stories. She has again portrayed the Pennsylvania German folk with rare sympathy and insight. Lorna Doone Beers, *Prairie Fires* (Dutton). Du Bose Heyward, *Porgy*, deals with the indolent casual swarming life of the negro quarter in a Southern city. *The Wind* (Harper), an anonymous novel of the Texas plains, well done. Helen Hull, *The Surry Family*, is a study of family fortunes in a Michigan town; quiet in tone but distinguished. *Bronze Collar*, John Frederick (Putnams), Southern California. *Dipper Hill*, Anne Bosworth Greene (Century Co.). A sequel to *The Lone Winter* (1923), the two books giving in journal form the narrative of a winter and summer spent on a high remote farm. Lucy Furman, *The Glass Window* (Atlantic Monthly Press—Little, Brown), a story of the Kentucky mountains.

Notable Novels.—The following novels both by writers of established reputation and by the younger and radical group have attracted wide attention:—Henry Adams, *Democracy* (Holt), published anonymously in 1879. Booth Tarkington, *Women* (Doubleday, Page), not a masterpiece like *Alice Adams*, but a bright and penetrating study of the middle-class suburban current-fiction-reading clubable American woman. Edith Wharton, *A Mother's Recompense* (Appleton). Gertrude Atherton, *Crystal Cup* (Boni and Liveright). Ernest Poole, *The Hunter's Moon* (Macmillan). Arthur Train, *The Needle's Eye* (Scribner). Katherine Newlin Burt, *Quest* (Houghton, Mifflin). Louis Bromfield, *Possession* (Stokes), Galsworthian. Donn Byrne, *Blind Raftery* and *O'Malley of Shanganagh* (Century Co.). Harry Leon Wilson, *Cousin Jane* (Cosmop. Book Corp., N. Y.). James Stevens, *Paul Bunyan* (Knopf), an American myth. Carl van Vechten, *Firecrackers*, sophisticated, intended to be amusing, "mantic" rather than romantic. Scott Fitzgerald, *The Great Gatsby* (Scribner). Francis Hackett, *The Nice Young Couple* (Boni and Liveright). John Dos Passos, *Manhattan Transfer* (Harper), a novel of modern New York in the new style in which the consciousness of the writer becomes a mere instrument for registering impressions. Elinor Wylie (Mrs. Wm. Rose Benét), *Venetian Glass Nephew* (Doran), a very well written, dainty literary fantasy. John Erskine, *Private Life of Helen of Troy* (Bobbs-Merrill), cultivated sophistication, in the tradition of Anatole France. Chamberlain, *The Great Van Suttart Mystery* (Putnam). Floyd Dell, *The Runaway* (Knopf). Anzia Yezierska, *Bread Givers* (Doubleday, Page), a vivid Ghetto story, Zolaesque, autobiographical. Nathan Asch, *The Office* (Harcourt, Brace), original in form, interesting psychology of "office people" and a subtle satire on Wall Street. Theodore Dreiser, *An American Tragedy* (Boni and Liveright), Mr. Dreiser's only novel since 1919. Last but not least (in popularity), another of the books that have certainly not proved "caviare to the general" is Harold Bell Wright's *A Son of His Father* (Appleton). Zane Grey's *The Thundering Herd* and James Oliver Curwood's *The Ancient Highway* belong to the vigorous type of "red blooded" fiction. President Lowell's definition of red blood, "that is to say, blood that has not passed through the brain," would be repudiated indignantly by all readers of Zane Grey and Curwood, and their name is legion.

Twelve Leading Novelists

Production for the last five years.

Cather, Willa (all published by Knopf).
- 1920—*Youth and the Bright Medusa.*
- 1922—*One of Ours.*
- 1923—*A Lost Lady.*
- 1925—*Professor's House.*

Wharton, Edith (all published by Appleton).
- 1920—*Age of Innocence.*
- 1922—*Glimpses of the Moon.*
- 1923—*A Son at the Front.*
- 1924—*Old New York.*

1925—*A Mother's Recompense.*
Hergesheimer, Joseph (all published by Knopf).
1921—*Cytherea.*
1922—*Bright Shawl.*
1924—*Balisand.*
Tarkington, Booth (all published by Doubleday, Page).
1919—*Ramsey Milholland.*
1921—*Alice Adams.*
1922—*Gentle Julia.*
1923—*The Fascinating Stranger.* (Short Stories.)
1924—*Midlander.*
1925—*Women.*
Gale, Zona (all published by Appleton).
1920—*Miss Lulu Bett.*
1923—*Faint Perfume.*
Lewis, Sinclair (all published by Harcourt, Brace).
1920—*Main Street.*
1922—*Babbitt.*
1925—*Arrowsmith.*
Glasgow, Ellen (all published by Doubleday, Page).
1919—*Builders.*
1922—*One Man in His Time.*
1925—*Barren Ground.*
Anderson, Sherwood (all published by Huebsch).
1919—*Winesburg, Ohio.*
1920—*Poor White.*
1921—*Triumph of the Egg.*
1922—*Many Marriages.*
1923—*Horses and Men.*
1924—*A Story Teller's Story.*
1925—*Dark Laughter.*
Dreiser, Theodore (all published by Boni and Liveright).
1919—*Twelve Men.*
1920—*Hey Rub-a-Dub-Dub.* (Essays.)
1922—*Book About Myself.*
1925—*An American Tragedy.*
Poole, Ernest (all published by Macmillan).
1920—*Blind.*
1921—*Beggars' Gold.*
1922—*Millions.*
1923—*Danger.*
1924—*Avalanche.*
1925—*Hunter's Moon.*
Cabell, James Branch (all published by McBride).
1920—*Cords of Vanity.*
Jurgen.
Domnei.
1921—*Figures of Earth.*
1922—*Lineage of Lichfield.*
1923—*High Place.*
1924—*Straws and Prayer-books.*
Dell, Floyd (all published by Knopf).
1920—*Moon-Calf.*
1921—*Briary-bush.*
1923—*Janet March.*
1925—*This Mad Ideal.*
Runaway.

Short Stories.—The flood of short stories defies analysis and record. Much is ephemeral, though no doubt symptomatic of the time. Though few will survive, they may serve the future historian of manners as source-material. The vogue of the small town in fiction of the Lulu Bett genre is exemplified in the following: (some of them earlier than 1925) William Allen White, *In Our Town* (Macmillan); short stories of Iowa and Kansas, Rupert Hughes, *In a Little Town* (Keokuk, Ia.) (Harper); Octave Thanet, *Stories of a Western Town* (Scribner); Dorothy Canfield, *The Bent Twig* (Holt); Grace Flandrau, *Being Respectable* (Harcourt, Brace); Laura E. Richards, *In Blessed Cyrus* (New England) (Appleton); Laura Wolcott, *Grey Dream* (Yale University Press); James Branch Cabell, *Rivet in Grandfather's Neck* (McBride), the South; Irvin Cobb, *Old Judge Priest.*

Each year are published the O. Henry Memorial Award Prize Stories (Doubleday, Page). William O'Brien edits an annual anthology of short stories. *More Aces* is the title of the Putnam collection for 1925. The following are worthy of mention: *Half Told Tales,* Henry van Dyke (Scribner); *Dawgs,* Charles Wright Gray (Holt); an anthology of stories about dogs; *Bigger and Blacker,* Octavius Roy Cohen (Little, Brown & Co.); *Married Life,* Edith O'Shaughnessy (Harcourt, Brace), combines sophistication with insight, well written.

BIOGRAPHY

By J. Duncan Spaeth
Professor at Princeton University

General.—Next to fiction biography and autobiography have been most assiduously cultivated, and there seems no diminution of interest on the part of the reading public in biographical literature. Not only is the year's output of high quality, but it is interesting to note the emergence of certain clearly defined newer ways of writing biography. There is the psychological or spiritual biography of which Brooks' *Ordeal of Mark Twain* and *Pilgrimage of Henry James* are examples; Bradford's "psychographs" and Dr. Collins' books are in the same tradition, as also Sherwood Anderson's autobiography, *A Story-Teller's Story*, a notable book having more to do with the inward significance of fact than with its outward order in the course of events; and furnishing the key to Anderson's literary art. There is the "novelized" type of biography, sometimes satiric in tone and influenced by the English example of Strachey's *Victoria.* Dibble's *John L. Sullivan*, Werner's *Brigham Young* and *P. T. Barnum* are in this tradition.

Public Persons.—Interest in memoirs of the war, except the most important, seems much diminished. The two most dominant personalities in American public life in the last generation, Theodore Roosevelt and Woodrow Wilson, have naturally attracted a number of biographers. The definitive biography of neither has as yet been written, but the following biographies and collections of letters that have appeared since 1919 are noteworthy. William Roscoe Thayer, *Theodore Roosevelt, an Intimate Biography* (Boston, Houghton, Mifflin, 1919). Joseph Bucklin Bishop, *Roosevelt and His Time Shown in His Own Letters* (Scribners, 1920). Hermann Hagedorn, *Roosevelt in the Bad Lands* (Boston, Houghton, Mifflin, 1921). Mrs. Corinne Roosevelt Robinson, *My Brother Theodore Roosevelt* (N. Y., Scribners, 1921). Joseph Bucklin Bishop, *Theodore Roosevelt's Letters to His Children* (Scribner, 1923). *The Letters of Archie Butt* (Doubleday, Page). *Selections from the Correspondence of Theodore Roosevelt and Henry Cabot Lodge, 1884-1918*, 2 vols. (Scribner). Oscar King Davis, *Released for Publication: some inside political history of Theodore Roosevelt and his time, 1898-1918* (Boston, Houghton, Mifflin). J. Hampton Moore, *Roosevelt and the Old Guard* (Phila., Macrae-Smith).

Charles Seymour, *Woodrow Wilson and the World War, A Chronicle of Our Own Time* (Yale Univ. Press, 1921). Joseph Patrick Tumulty, *Woodrow Wilson, as I Knew Him* (Doubleday, Page, 1921). Ray Stannard Baker, *Woodrow Wilson and World Settlement, written from his unpublished and personal material* (N. Y., Doubleday, Page, 1922); a history of the peace conference. William Allen White, *Woodrow Wilson, the Man, His Times, and His Task* (Boston, Houghton, Mifflin, 1924); an interesting, though somewhat subjective, interpretation by an admirer. Robert Edwards Annin, *Woodrow Wilson: A Character Study* (N. Y., Dodd, Mead, 1924); accurate and judicial, but his opinions open to controversy. Josephus Daniels, *The Life of Woodrow Wilson, 1856-1924* (Winston, 1924). David Lawrence, *True Story of Woodrow Wilson* (N. Y., Doran, 1924) by a journalist who as an undergraduate in Princeton knew Wilson. Henry Cabot Lodge, *The Senate and the League of Nations* (N. Y., Scribner); a hostile view of President Wilson's character, in which partisan opposition is colored by a personal antipathy that was mutual. Woodrow Wilson also looms large in *The Life and Letters of Walter Hines Page* (3d vol., Doubleday, Page, 1925); probably the most widely read biography of the year. Other notable biographies of Americans, prominent in business, public and professional life, living or recently deceased, are Don C. Seitz, *Joseph Pulitzer* (Simon and Schuster, 1924). Harvey Cushing, *The Life of Sir William Osler* (N. Y., Oxford Univ. Press). Harris E. Starr, *William Graham Sumner* (Holt). Ida M. Tarbell, *The Life of Elbert H. Gary* (N. Y., Appleton); a record of the business career of Judge Gary rather than a biography of the man. Russell Conwell, *The Romantic Rise of a Great American* (*John Wanamaker*) (N. Y., Harper, 1924). (Herbert Adams Gibbons is writing the official biography of Mr. Wanamaker.) *The Memoirs of William Jennings Bryan* (Winston); begun as autobiography shortly before his death and completed by his wife, Mary Baird Bryan. William Allen White, *The Man Who Is President* (*Calvin Coolidge*) (N. Y., Macmillan). Bishop William Lawrence, *Henry Cabot Lodge* (Houghton, Mifflin); a warmly appreciative biography by a life-long friend and admirer. W. H. Downes, *John S. Sargent, His Life and Work* (Little, Brown & Co.). R. F. Dibble, *John L. Sullivan;* a distinguished example of the new "intimate" anecdotal biography, in which one is always aware of the biographer's personality. A subtle satire on J. L. S. and "the crowd." M. R. Werner, *Brigham Young* (Harcourt, Brace); by the author of *P. T. Barnum* (1924); a breezy and highly entertaining biography of the self-styled "Prince of Humbugs," and incidentally a history of American popular taste during the last century. The Lincoln book of 1925 is: W. E. Barton, *Life of Lincoln* (Indianapolis, Bobbs-Merrill); contains some new material. N. A. Stephenson, *Lincoln* (1922) has permanent value as an interpretation of the mystical background of Lincoln's nature, and as a penetrating study of the development of the literary artist in Lincoln. Paul Revere Frothingham, *Edward Everett* (Houghton, Mifflin); the author of the Gettysburg speech that was forgotten is the subject of a notable biography.

Other notable biographies of the year are:—Theodore Clark Smith, *Life and Letters of James Abram Garfield*, 2nd vol. (New Haven, Yale Univ. Press). V. L. Collins, *President Witherspoon* (Princeton Univ. Press). Samuel H. Wandell and Meade Minnigerode, *Aaron Burr* (Putnam). Claude G. Bowers, *Jefferson and Hamilton* (Boston, Houghton, Mifflin). Kenneth B. Murdock, *Increase Mather* (Cambridge, Harvard Univ. Press). Barrett Wendell, *Cotton Mather, the Puritan Priest* (Cambridge, Harvard Univ. Press). Gamaliel Bradford, *Wives* (Harper); seven wives of great Americans; contains his essay on the æsthetics of biography. In lighter vein is: Don C. Seitz, *Uncommon Americans* (Bobbs-Merrill); Brigham Young, Tecumseh, Whitman, etc.; "Pencil Portraits of men and women who broke the rules and won fame."

Literary Persons.—The most notable literary biography that will rank permanently with memorable biographies is Amy Lowell, *John Keats* (Boston, Houghton, Mifflin, 1924). The author's last work. Its value lies not only in the new material added by Miss Lowell from her own collection of Keats mss. and first editions, but in the comment on the poetry of Keats, by a keen critical intellect warmed by the generous sympathy of a fellow-poet. To Miss Lowell, Keats is not romanticist but realist and imagist, and her appreciation is fresh and thoroughly modern. The book is unique, and to the academic critic puzzling, in the combination of the qualities the author brings to her task—the expert in book collecting, the expert in critical theory, and the expert in poetic technic having united in Miss Lowell to produce a book of romantic hero-worship, a new style. Mary Lawton, *A Life-time With Mark Twain* (Harcourt, Brace & Co.); based on the reminiscences of Katy Leary, a faithful family servant and friend. Van Wyck Brooks, *The Pilgrimage of Henry James* (E. P. Dutton & Co.). M. A. DeWolfe Howe, *Barrett Wendell and His Letters* (Atlantic Monthly Press). Ernest Boyd, *H. L. Mencken* (McBride). Isaac Goldberg, *H. L. Mencken* (Simon & Schuster). *Edgar Allan Poe Letters* (till now unpublished); introduction by Mary Newton Stannard (Phila., Lippincott

Co.). Mary Newton Stannard, *The Dreamer;* a romantic rendering of the life of Poe. Joseph Collins, *The Doctor Looks at Biography* (Doran); has an interesting introductory essay on the writing of biography, contrasting the modern Christian with the classical conception of personality: an approach to literary biography from the therapeutic point of view. Albert Bigelow Paine, *Joan of Arc* (Macmillan); a notable biography in the field of medieval history.

The following list shows that the tide of autobiographies is still running strong: *Mark Twain's Autobiography* (Harper, 1924); disappointing. Edward W. Bok, *Twice Thirty* (Scribner); surpasses in interest the *Americanization of Edward Bok,* in its recollections of great men. *Recollections of Thomas Marshall* (Vice President and Hoosier philosopher), *A Hoosier Salad* (Bobbs-Merrill); delightfully written, abounds in humor and anecdote. Maurice Francis Egan, *Recollections of a Happy Life* (Doran). Brand Whitlock, *Forty Years of It* (Appleton). Major General James G. Harbord, *Leaves from a War Diary* (Dodd, Mead). Samuel Gompers, *Seventy Years of Life and Labor* (Dutton). Herbert Quick, *One Man's Life* (Bobbs-Merrill). George Gordon, *My Education and Religion* (Houghton, Mifflin); a delightful autobiography by a great American preacher of Scottish birth. Edward A. Steiner, *Eternal Hunger, vivid moments in personal experience* (Fleming, Revell). E. P. Mitchell, *Memoirs of an Editor* (Scribner). Joseph Pennell, *The Adventures of an Illustrator* (Little, Brown & Co.). T. A. Daly, *Herself and the Houseful* (Harcourt, Brace & Co., 1924); an amusing account of the life of a journalist-poet with a large family. Rheta Child Dorr, *A Woman of Fifty* (Funk and Wagnalls, 1924); remarkable for its personal sincerity. Corra Harris, *As a Woman Thinks* (Houghton, Mifflin Co.); like her previous volumes *My Book and Heart,* and *The Circuit Rider's Wife,* a sincere record of an inward life that is not isolated but richly human. Janet Scudder, *Modelling My Life* (Harcourt, Brace & Co.). Nora Archibald Smith, *Kate Douglas Wiggin as Her Sister Knew Her* (Houghton, Mifflin Co.). Sherwood Anderson, *A Story-Teller's Story* (Huebsch, 1924); a remarkable literary autobiography, revealing an artist staggering to his feet, and slowly but surely finding himself. Jim Tully, *Beggars of Life* (A. and C. Boni, 1924); a kaleidoscope of tramp life; out-Rousseaus Rousseau. One of the most notable biographies of recent years is Michael Pupin, *From Immigrant to Inventor* (N. Y., Scribner, 1923).

AMERICAN POETRY

By J. Duncan Spaeth

Professor at Princeton University

New Verse.—The year's harvest has not been rich in the field of poetry. Perhaps the most noteworthy contributions are:—Edwin Arlington Robinson, *Dionysus in Doubt* (Macmillan). Conrad Aiken, *Priapus and the Pool and Other Poems* (Boni & Liveright). Amy Lowell, *What's O'Clock* (Houghton, Mifflin). Mr. Robinson's early lyric gift has in *Dionysus* been further attenuated by speculation, except in one or two sonnets, but the whole collection is on a high plane both technically and spiritually. Aiken's *Priapus and the Pool,* first published in 1922, has been out of print and is reissued with additional poems. Conrad Aiken belongs to the poets to whom poetry is both "rhythmic creation of beauty" and "criticism of Life." In Miss Lowell's posthumous volume there is nothing that will add to her fame; her main emotional energy had latterly gone into her *Keats,* but she continues in *What's O'clock* to create images of glassy brilliancy that float gaily or sadly down the stream of her fancy.

A survey of the year's verse shows

that the free verse movement has passed its peak; and there is an evident rapprochement between vers librists with an artistic conscience and the users of traditional forms with an open ear for new cadences in verse. Beyond these, and tending in opposite directions, is a fringe of traditionalists and radicals, the latter in their eagerness to pluck up poetry by its roots frequently salvage only the roots and sometimes only the soil clinging to the roots. A fairly representative list of the rising group of American poets would include E. A. Robinson, Robert Frost, Vachel Lindsay, John Gould Fletcher (now resident in England), Conrad Aiken, C. E. S. Wood (his *Maia* is a notable sonnet series, and his *Poet in the Desert* is in the tradition of Whitman, "cosmic" and "social"), Carl Sandburg, Witter Bynner, Louis Untermeyer, Ezra Pound, Edgar Lee Masters, Maxwell Struthers Burt, William Ellery Leonard, John Neihardt, William Rose, and Stephen Vincent Benét, and among the increasing number of women poets at least these: Sara Teasdale, Edna St. Vincent Millay, H. D. (Hilda Doolittle, Mrs. Richard Aldington), Margaret Widdemer, Leonora Speyer, Lola Ridge, Mary Carolyn Davis, Hilda Conkling, Harriet Monroe. Among important recent studies of the new movement in poetry should be mentioned: Amy Lowell, *Tendencies in American Poetry;* Mary Wilkinson, *New Voices;* Clement Wood, *Poets of America;* Bruce Weirich, *From Whitman to Sandburg in American Poetry*, a critical study. Vachel Lindsay *Collected Poems* (illustrated, Macmillan) were originally published in 1923. Mr. Lindsay's later poems are burdened with a conscious symbolism. Stephen Vincent Benét, *Tiger Joy* (Doran Co.), contains his ballad of *David* which won the *Nation* poetry prize several years ago. Maxwell Struthers Burt, *When I Grew to Middle Age* (Scribner). Hilda Conkling's *Ship's Log* was in Leonard Bacon, *Ph.D.'s*—satiric. Lew Sarrett, *Slow Smoke* (Holt). Margaret Widdemer, *Ballads and Lyrics* (Harcourt, Brace). Harriet Monroe, *The Differences and Other Poems* (Macmillan). George H. Dillen, *Preludes.* Hermann Hagedorn, *Ladders Through the Blue* (Doubleday, Page). H. D., *Heliodora and Other Poems* (Houghton, Mifflin, 1924). William Ellery Leonard, *Two Lives* (Huebsch-Viking Press). John Neihardt, *The Song of the Indian Wars* (Macmillan), carries on his epic which was begun in *The Song of Three Friends.* John Harrington Cox (ed.), *Folk-Songs of the South* (Harvard Univ. Press). Nathalia Crane (aetat 12!), *Lava Lane* (Thomas Seltzer) has excited interest of public and critics. Whether written by her or not, it is a surprising bit of work, but its excellence lies in technic and brilliant fancy rather than in depth of emotion. The verses show marked advance on *The Janitor's Boy* and a remarkable background of reading for a child of twelve. Miss Crane's authorship has been doubted by Edwin Markham and warmly defended by William Rose Benét.

Anthologies.—Extent of the "Poetic Revival" is evidenced rather by demand for good anthologies than by the character of the poetic output. The publishers report a phenomenal sale of E. Burton Stevenson, *Home Book of Modern Verse* (Holt, 1924)—includes British poets. Louis Untermeyer, *Modern American Poetry* (3d ed. rev. and enl., Harcourt, Brace, 1925); in its 65th thousand. Other recent anthologies are:—*The Bookman Anthology of Verse.* Richard LeGallienne, *Anthology of American Verse* (Boni & Liveright); a companion volume to his *Anthology of English Verse.* W. S. Braithwaite, *Anthology of Magazine Verse, 1924, and Year Book of American Poetry.* Alfred Kreymborg, *Anthology of the New Verse.* Harriet Monroe, *New Poetry Anthology.* Robert Haven Schauffler, *The Poetry Cure, A Pocket Medicine Chest of Verse* (Dodd, Mead). *Poets of the Future* (Stratford Co., 1916-24); a college anthology. Ray Towner Thompson (ed.), *The Lyric West* (Los Angeles); mostly California verse. Harold Vinal (ed.), *Voices, An Open Forum for the Poets.*

AMERICAN BELLES LETTRES

BY J. DUNCAN SPAETH
PROFESSOR AT PRINCETON UNIVERSITY

Essays.—In the field of criticism America is least mature as compared with Europe. The influence of Croce is perceptible in much of the newer æsthetic criticism that makes pretense to seriousness. Of the classical school of criticism Mr. Paul Elmer Moore, Mr. Irving Babbitt, Mr. Brownell, are the chief exponents. Mr. Mencken is the most lively of the modernists, and has a large following; and as editor of the *American Mercury* appeals to a wide public; Mencken is the subject of an interesting sketch by Ernest Boyd (McBride) and of a full length Ph.D. biography by Isaac Goldberg (Simon and Schuster).

Among the most readable contributions to American criticism in recent years are the books of Stuart Sherman, especially *Americans* and *The Genius of America* (Scribner, 1923). Mr. Sherman believes in "standards," but understands and likes the younger generation, champions the Puritans, but praises Walt Whitman, defends the Middle West against Mrs. Gerould and New England against the barbarians, and is probably the only American critic who can hold imaginary conversations with both Mr. P. E. More and Mr. H. L. Mencken, and emerge smiling. His later conversational essays revive the tradition of the *Autocrat of the Breakfast Table.* He has latterly given up interpreting grown-up literature to the growing generation in the University of Illinois in order to interpret a growing up literature to the grown-ups, as editor of the N. Y. *Herald Tribune* "Books" section.

In the field of chatty essay on books Mr. A. Edward Newton continues to delight his readers. He has the gift of letting his personality flow through the end of his pen, which will make any man an essayist if he have a personality. Mr. George Santayana, besides being poet and philosopher, is a philosophic essayist, who in spite of the somewhat condescending tone of his *Character and Opinion in the United States*, deserves to rank high for the brilliancy of his intellect and the charm of his style. Ernest Boyd, author of *Civilization in the United States,* though an Irishman by birth is an American by residence, and a good European by culture, and is one of our best informed critics in modern European literary movements. A survey of critical tendencies is given in *Criticism in America, Its Function and Status* (Harcourt, Brace), containing essays by critics of such widely divergent outlook as Irving Babbitt, Van Wyck Brooks, N. C. Brownell, Ernest Boyd, T. S. Eliot, H. L. Mencken, Stuart P. Sherman, J. E. Spingarn, George E. Woodberry.

Criticism.—In what may be broadly described as criticism of contemporary American civilization there are three main tendencies. The "race-dogmatists" interpret civilization in terms of race, and racial heredity. Madison Grant's *The Passing of a Great Race;* Stoddard's *Rising Tide of Color* and *The Revolt Against Civilization;* Albert Edward Wiggam's *New Decalogue of Science* and *The Fruit of the Family Tree* (Bobbs-Merrill) are examples of this tendency. Glenn Frank's editorials in *The Century* constituted a notable criticism of this school.

Ellsworth Huntingdon's books belong to the school that emphasizes the importance of climate and physical environment. The third group emphasize cultural or literary influence and social inheritance and however widely divergent their valuations of literary and cultural periods, whether Hellenists, or Medievalists, or Modernists, whether Sociologists or Humanists, they agree in opposing cultural factors to biologic or economic determinism.

Among the more important contributions in the field of essays, criticism, popularized science, and philosophy are to be noted:—*Essays, Lit-*

erary and Critical Academy Papers, by Paul Elmer More, William Milligan Sloane, William C. Brownell, Brander Matthews, Bliss Perry, Paul Shorey, Henry Van Dyke, and Robert Underwood Johnson. Addresses on Language Problems (Scribner). W. C. Brownell, *The Genius of Style* (Scribner). H. L. Mencken, *Prejudices, Fourth Series* (Knopf). James B. Cabell, *Straws and Prayer-books* (McBride). *Points of View, Letters to a Lady in the Country* (Scribner), and *My Dear Cornelia* (Little, Brown & Co.) by Stuart P. Sherman.

Definitions.—Henry Seidel Canby, *Essays in Contemporary Criticism* (Harcourt, Brace, 1922). Edith Wharton, *The Writing of Fiction* (Scribner). Ernest Boyd, *Studies from Ten Literatures.* V. F. Calverton, *The Newer Spirit* (Boni & Liveright); socialized literary criticism. William Lyon Phelps, *Human Nature and the Gospel* and *As I Like It* (Scribner); from the columns of *Scribner's Magazine.* A. Edward Newton, *The Greatest Book in the World* (Little, Brown & Co.); the author of *The Amenities of Book Collecting* and *A Magnificent Farce,* here continues to write charmingly and wittily about his favorite books, plays, and people. Agnes Repplier, *Under Dispute;* a new collection of essays in her best manner. Carl van Doren, *Other Provinces* (Knopf); the Scholar, the Gypsy, the Barbarian, are charming sketches. George Jean Nathan, *The Autobiography of an Attitude* (Knopf); Mr. Nathan's attitude is intended by himself to be striking. He believes that "to him who thinks, life is a comedy." Like Byron he reduces the romantic to burlesque. Meade Minnigerode, *Lives and Times* (Putnam). C. S. Brooks, *Like Summer's Clouds* (Harcourt, Brace). J. B. Priestly, *The English Comic Characters* (Dodd, Mead). Herman J. Weigand, *The Modern Ibsen* (Holt). Lafcadio Hearn, *Confidential Gleanings* [edited by Albert Mordell] (Dodd, Mead). David Grayson, *Adventures in Understanding* (Doubleday, Page); the author of *Adventures in Contentment* tries out his homely philosophy on New York. Nicholas Murray Butler, *The Faith of a Liberal* (Scribner, 1924). Walter Lippmann, *The Phantom Public* (Harcourt, Brace & Co.). W. C. Abbott, *The New Barbarians* (Little, Brown). George Albert Coe, *What Ails Our Youth* (Scribner). Ben Lindsey, *The Revolt of Modern Youth* (Boni & Liveright).

Literary History.—John Macy, *The Story of the World's Literature* (Boni & Liveright); one of the best of the popular "Survey" books, the fashion for which was set by Wells. Carl and Mark van Doren, *American and British Literature since 1890* (The Century Co.). R. L. Lusk, *The Literature of the Middle Western Frontier* (Columbia Univ. Press); scholarly rather than literary. Harold L. Bruce, *William Blake and His Works* (Harcourt, Brace Co.); a contribution to scholarship.

Culture History.—Ralph G. Turner, *America in Civilization* (Knopf). Sydney and Marjorie Greenbie, *Gold of Ophir or The Lure That Made America* (Doubleday, Page); "a romantic record of the making of America more glamorous than most novels, and more significant than most histories." Ludwig Lewisohn, *Israel* (Boni & Liveright). Lothrop, *Social Classes in Post-War Europe* (Scribner); the author of *The Rising Tide of Color* and *The Revolt Against Civilization* writes here rather as a social philosopher than as a race dogmatist. Konrad Bercovici, *On New Shores* (Century Co.); a study of the influence of new environments on old racial stocks. William McDougall, *Indestructible Union* (Little, Brown & Co.). Hendrik Van Loon, *Tolerance* (Boni & Liveright); a study of intolerance throughout history.

Philosophy. — George Santayana, *Dialogues in Limbo* (Scribner); combines philosophic acumen with literary charm. George T. Patrick, *The World and Its Meaning* (Houghton, Mifflin). Durant Drake, *Mind and Its Place in Nature* (Macmillan). Rollo Brown, *The Creative Spirit* (Harper). Stewart Edward White, *Credo, A Layman's Philosophy* (Harcourt, Brace); this is the philosophy of the man of action working inward from the surface world of deed to the central region of personality. Spirited rather than spiritual. Mr. White blazes new trails to old summits. His philosophy is a compound of mysticism and common sense.

Travel and Description.—The few titles here given represent notable books of the year which are genuinely scientific without being too technical to be included under general literature. Samuel C. Schumucker, *Man's Life on Earth* (Macmillan); an excellent statement of the present status of anthropological science by a Christian evolutionist. Matthew Luckiesh, *Foundations of the Universe.* Louis More, *The Dogma of Evolution* (Princeton Univ. Press); an attack on the implications of evolutionism by a physicist from the point of view of philosophical Dualism. R. S. Lull, *Ways of Life* (Harper); a discussion of evolution.

Travel and Adventure.—Carveth Wells, *Six Years in the Malay Jungle* (Doubleday, Page). William McFee, *Sunlight in New Granada* (Doubleday, Page). Clayton Hamilton, *Wanderings* (Doubleday, Page). William Beebe, *Jungle Days* (Putnam). Leo Crane, *Indians of the Enchanted Desert* (Atlantic Monthly Press). Roald Amundsen and Lincoln Wellsworth, *Our Polar Flight* (Dodd, Mead). Lowell Thomas, *The First World Flight, As Told by the Fliers* (Houghton, Mifflin Co.). F. W. Schmoe, *Our Greatest Mountain* (Putnam). C. F. Lummis, *Mesa, Canyon and Pueblo* (Century Co.). Harry Franck, *Roving Through Southern China* (Century Co.). Ellsworth Huntingden, *West of the Pacific* (Scribner). Richard Halliburton, *The Royal Road to Romance* (Bobbs-Merrill); adventures of a Princeton graduate on a journey to remote corners of the world. Lucretia Perry Osborn, *The Chain of Life* (Scribner). Joseph W. Beach, *Meek Americans* (University of Chicago Press). Katharine Fullerton Gerould, *The Aristocratic West* (Harper).

DIVISION XXXVI

LITERATURE AND LANGUAGE

ENGLISH LANGUAGE AND LITERATURE

By Albert Croll Baugh

Associate Professor of English, University of Pennsylvania

Extent of Research.—The labors of American scholars in the field of the English Language and Literature each year fill many volumes and the issues of many special and technical journals. Merely to list the titles of books and articles, dissertations and monographs would take more pages than the limits of this account permit. Much of the material published is of interest only to the specialist who, because of his familiarity with the subjects discussed, is capable of appreciating its significance. In the present survey an attempt is made to record such progress in the field as is of importance to the enlightened public at large.

The English Language.—On the English language the outstanding book of the year is G. P. Krapp's *The English Language in America*, containing within its two volumes discussions of the mother tongue, words of American origin or peculiar to America, literary dialects, style, American spelling, American dictionaries, and a lengthy treatment of American pronunciation during the last two hundred years. Interest in the English spoken in America is evidenced by the establishment of a monthly magazine called *American Speech*. The first issue, which appeared in October, contains among others an entertaining and instructive article on "Conservatism in American Speech," by George H. McKnight. *Academy Papers*, by members of the American Academy of Arts and Letters contains addresses on subjects connected with language by Paul Elmer More, Brander Matthews, and others. G. W. Small has published his dissertation on *The Comparison of Inequality* (Johns Hopkins Univ.).

Old English Literature (449-1150).—Stanley Rypins has edited *Three Old English Prose Texts in MS. Cotton Vitellius A XV* (the MS. which contains *Beowulf*) for the Early English Text Society. M. D. Chubb has edited the Old English poem of *Christ and Satan* (Yale), and J. H. Pitman has published the text and a verse translation of *The Riddles of Aldhelm* (Yale). G. H. Gerould makes an interesting comparison of "Ælfric's Lives of St. Martin of Tours" (*JEGP*),[1] of which there are two, and offers an explanation of "Abbot Ælfric's Rhythmic Prose" (*MP*).

Middle English Literature (1150-1500).—H. R. Patch's "Characters in Medieval Literature" (*MLN*) is an interesting collection of examples of the kind of thumbnail portrait so popular in the seventeenth century. Miss Hope Traver in *The Four Daughters of God: A Mirror of Changing Doctrine* (*PMLA*) supplements her previous study of the allegorical debate between Mercy, Truth, Peace, and Righteousness. Miss Helen F. Rubel writes about *Chabham's Penitential and Its Influence in the Thirteenth Century* (*PMLA*). The interest in Chabham lies in his classification of minstrels, and Miss Rubel's findings confirm Poole's identification of the author, and place the date of his work in the early part of the thirteenth century instead of a century later. Sister Mary Madeleva has published *Pearl: A Study in Spiritual Dryness*, an essay on a famous fourteenth century poem. Another work by the same poet is the subject of a stimulating paper by R. M. Garrett called "The Lay of Sir Gawain and the Green Knight" (*JEGP*). R. S. Loomis's "Medieval Iconography and the Question of Arthurian Origins" (*MLN*) pleads for the use of archæological evidence in the solution of literary problems. Kemp Malone is led to modify his position with respect to the historical original of King Arthur by the discovery of an "Artorius" (*MP*), a Roman general (Lucius Artorius Castus) in Britain in the second century, some incidents in whose career parallel those in the legend of Arthur. J. J. Parry has edited *The Vita Merlini*, attributed to Geoffrey of Monmouth, and has published two articles on the subject, "Celtic Tradition and the *Vita Merlini*" (*PQ*) and "The Date of the *Vita Merlini*" (MP), the latter containing evidence pointing to 1150.

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[1] Periodicals are cited under the following abbreviations, the reference being always to the volume for the year covered by this review:—*PMLA, Publications of the Modern Language Association of America*—*MP, Modern Philology*—*MLN, Modern Language Notes*—*MLR, Modern Language Review*—*JEGP, Journal of English and Germanic Philology*—*SP, Studies in Philology*—*PQ, Philological Quarterly*—*RES, Review of English Studies*—*RR, Romanic Review*. Titles appearing as theses or in the publications of universities are followed where possible by the name of the university.

Among Chaucer studies "Chaucer and the Church" (*MLN*) is an important article by E. P. Kuhl representing Chaucer as a liberal but no Lollard and illustrating his position by reference to contemporary events and persons. Karl Young interprets "Chaucer's Renunciation of Love in *Troilus*" (*MLN*) as a revulsion of feeling from the unsound morals of the poem and cites an analogous instance. H. Y. Moffett shows by reference to contemporary manorial documents that Chaucer had reason to assign to "Oswald the Reeve" (*PQ*) certain qualities necessary to a capable overseer, and W. C. Curry finds it easier to determine the knowledge and competency of "Chaucer's Doctor of Physyck" (*ibid.*) than to understand clearly his character. P. F. Baum remarks upon some of the difficulties presented by "The Canon's Yeoman's Tale" (*MLN*) and offers incidentally an explanation of the chemistry of the Canon's two experiments. W. Wells points out "A New Analogue to the *Pardoner's Tale*" (*MLN*) in Jack London's story, *Just Meat*.

Late Middle English.—Studies include a privately printed paper by G. L. Kittredge on *Sir Thomas Malory*, an edition by Miss Laura Sumner of a fifteenth century poem on *The Weddynge of Sir Gawen and Dame Ragnell* (Smith), and Reed Smith's *The Traditional Ballad and its South Carolina Survivals* (South Carolina), which contains among other interesting matters new recordings of eleven old ballads. *Progress of Medieval Studies in the United States of America* is the third such annual survey published by J. F. Willard (Colorado).

Modern English Literature (since 1500).—A similar bibliography of the early modern period is T. S. Graves's "Recent Literature of the English Renaissance" (*SP*). L. R. Merrill's *The Life and Poems of Nicholas Grimald* (Yale) is a useful work on one of the contributors to *Tottel's Miscellany.* Studies of Spenser include H. H. Blanchard's "Imitations from Tasso in the *Faerie Queene*" (*SP*), M. Y. Hughes's "Spenser's Debt to the Greek Romances" (*MP*), which decides against direct indebtedness, and F. F. Covington's "Spenser and Alexander Neckam" (*SP*). R. R. Cawley in "Drayton's Use of Welsh History" (*SP*) shows that in a portion of the *Poly-olbion* Drayton was merely versifying the standard history of Wales in his day. T. K. Whipple has published a monograph on *Martial and the English Epigram from Sir Thomas Wyatt to Ben Jonson* (California). W. E. Mead has edited for the Early English Text Society a late Arthurian romance entitled *The Famous Historie of Chinon of England*, written by Christopher Middleton and published in 1597, to which he appends a shorter piece called *The Assertion of King Arthure.*

Elizabethan Playwrights.—*Elizabethan Playwrights* is a one volume history of the English drama from medieval times to the closing of the theatres in 1642, by Felix E. Schelling, the recognized American authority in the field. One of the most picturesque discoveries of the year is J. Leslie Hotson's uncovering of the circumstances of Christopher Marlowe's death. According to documents which he found in the Public Record Office, Marlowe was killed, May 30, 1593, in a quarrel with one Ingram Frizer over the charges for what they had to eat and drink together at a tavern just outside of London.

R. S. Forsythe discusses Marlowe's poem, "*The Passionate Shepherd* and English Poetry" (*PMLA*), particularly tracing the theme of the invitation to love through a surprising number of instances to our own time. T. W. Baldwin offers some valuable new considerations "On the Chronology of Thomas Kyd's Plays" (*MLN*).

Shakespeare.—Much has been published during the year on Shakespeare. The late Raymond M. Alden's *A Shakespeare Handbook* is largely concerned with source material of Shakespeare's plays. G. C. Taylor's *Shakespeare's Debt to Montaigne* is a small but meaty book. Two papers by Hardin Craig, "Shakespeare's Depiction of Passions" (*PQ*) and "The Ethics of King Lear" (*PQ*) illustrate an important tendency in recent criticism to interpret Shakespeare in the light of Elizabethan thought. E. P. Kuhl in a long paper on "The Authorship of *The Taming of the Shrew*" (*PMLA*) pleads for Shakespeare's authorship throughout the play. H. D. Gray in "Heywood's *Pericles*, revised by Shakespeare" (*PMLA*) sufficiently indicates his thesis by his title. Allison Gaw studies the occurrences of "Actors' Names in Basic Shakespearean Texts, with special Reference to *Romeo and Juliet* and *Much Ado*" (*PMLA*) with unexpected results. S. A. Tannenbaum argues at length on the basis of paleography against the identity of "Shakspere's Unquestioned Autographs and the Addition to *Sir Thomas Moore*" (*SP*) and in another paper, "Reclaiming One of Shakspere's Signatures" (*SP*), maintains the genuineness of the signature in a volume of Montaigne. Shakespeare's successors are discussed in Miss E. C. Dunn's *Ben Jonson's Art: Elizabethan Life and Literature as Reflected Therein* (Smith) and Miss M. C. Struble's "The Indebtedness of Ford's *Perkin Warbeck* to Gainsford" (*Anglia*). E. E. Stoll in "The Old Drama and the New" (*MLR*) defends the old against Mr. Archer's attacks.

Commonwealth and Restoration.—Alwin Thaler in "The Shaksperian Element in Milton" (*PMLA*) points out many parallels in thought and phrasing which continue to appear in Milton's work till the end of his life. Miss M. H. Nicholson finds much similarity in "The Spirit World of Milton and [Henry] More" (*SP*) and Miss M. H. Studley discusses matters of source and practice in "Milton and His Paraphrases of the Psalms" (*PQ*). Commonwealth and Restoration drama are the subject of occasional treatment. Under the title *The Comic Spirit in Restoration Drama* H. T. Perry gathers together studies of Etherege, Wycherley, Congreve, Vanbrugh, and Farquhar. J. L. Hotson shows the continuance of "Bear Gardens and Bear-baiting during the Commonwealth" (*PMLA*) and T. S. Graves makes a plausible case for the sporadic appearance of "Women on the Pre-Restoration Stage" (*SP*), at least on special occasions. Miss A. M. Ellis finds "Horace's Influence on Dryden" (*PQ*) both wide and strong. A. H. Nethercot gives us the next two chapters in his dissertation, one on "The Reputation of the 'Metaphysical Poets' during the Age of Pope" (*PQ*), and the other on "The Reputation of the 'Metaphysical Poets' during the Age of Johnson and the Romantic Revival" (*SP*). A. C. Judson in an interesting note entitled "Who Was Lucasta?" (*MP*) finds no evidence that Lovelace died of a broken heart and offers plausible reasons for thinking Lucasta a largely imaginary person.

Eighteenth Century.—Bernard Mandeville's *The Fable of the Bees* has been handsomely edited by F. B. Kaye with scholarly apparatus. H. C. Hutchins' *Robinson Crusoe and Its Printing, 1719-1731* is a bibliography of value both to the scholar and the collector. Largely bibliographical also is W. E. Schultz's "The Music of the Beggar's Opera in Print" (Music Teachers' National Association, *Proceedings*). W. L. Cross has revised and considerably extended his *Life and Times of Laurence Sterne.* Two of Sterne's contemporaries are the subject of volumes of criticism and interpretation, F. T. Blanchard's *Fielding the Novelist: A Study in Literary Reputation* and H. S. Buck's *A Study in Smollett, Chiefly* Peregrine Pickle. Stanley Rypins writes on "Johnson's Dictionary Reviewed by His Contemporaries" (*PQ*), and the original manuscript of *Boswell's Note Book, 1776-1777*, owned by Mr. R. B. Adam, of Buffalo, has been made available in an attractive and inexpensive edition. *Goldsmith's Animated Nature* is the title of a monograph by J. H. Pitman (Yale) and *Italian Landscape in Eighteenth Century England: A Study Chiefly of the Influence of Claude Lorrain and Salvator Rosa on English Taste, 1700-1800* (Wellesley) is a volume by Miss E. W. Manwaring. J. W. Draper's dissertation, *William Mason: A Study in Eighteenth Century Culture* (N. Y. Univ.) is a sizable volume on a minor but interesting poet. Benjamin Bissell traces *The American Indian in English Literature of the Eighteenth Century* (Yale) and J. M. Longaker, in *The Della Cruscans and William Gifford* (Pennsylvania), finds an interesting subject in a small coterie of little known poets.

Nineteenth Century. — *William Blake in This World* is a stimulating book by Harold Bruce. P. Kaufman's "Defining Romanticism: A Survey and a Program" (*MLN*), Walter Graham's "Some Infamous Tory Reviews" (*SP*), and the same author's "Henry Nelson Coleridge, Expositor of Romantic Criticism" (*PQ*) all concern romanticism or the reaction to it. F. V. Morley in *Dora Wordsworth her Book* portrays Wordsworth's family life and the Wordsworth circle. M. J. Herzberg discusses *William Wordsworth and German Literature* (*PMLA*). J. W. Beach offers "Expostulation and Reply" to certain critics of Wordsworth (*ibid.*), and J. R. Moore points out "Wordsworth's unacknowledged Debt to Macpherson's *Ossian*" (*ibid.*). T. M. Raysor gathers together a few "Unpublished Fragments on Æsthetics by S. T. Coleridge" (*SP*). An outstanding book of the year is Amy Lowell's biography of *John Keats* in two large volumes and containing not a little new material. Miss R. D. Cornelius reprints *Two Early Reviews of Keats's First Volume* (*PMLA*), interesting because they are earlier than the three previously known, and Miss M. H. Shackford presents an analysis and critique of "Hyperion" (*SP*) with a consideration of some influences that met in its production. Walter Graham shows how extensive was *Shelley's Debt to Leigh Hunt and the Examiner* (*PMLA*). A. S. Walker in *Peterloo, Shelley and Reform* (*PMLA*) gives an extended account of the "Peterloo Massacre" at Manchester, Aug. 16, 1819, and its effect upon Shelley. W. E. Peck notes a relation between *Shelley, Mary Shelley and Rinaldo Rinaldini* (*ibid.*), and N. I. White in *"Shelley's Prometheus Unbound, or Every Man His Own Allegorist"* (*ibid.*) attacks the usual assumptions of allegory in the poem. F. L. Mott shows the extent and appreciativeness of "Carlyle's American Public" (*PQ*) and H. M. Lydenberg in "What Did Macaulay Say about America?" (N. Y. Pub. Lib.) gives the text of four letters. W. S. Knickerbocker's *Creative Oxford: Its Influence in Victorian Literature* (Syracuse) is an interpretation of the movements and personalities in Oxford in the nineteenth century. L. N. Broughton and B. F. Stelter have completed their *Concordance to the Poems of Robert Browning*, a laborious and valuable piece of work. Judge John M. Gest has published *The Old Yellow Book, Source of Browning's "The Ring and the Book"* in a new translation with notes and critical chapters on the poem and its source. Louis Wann in "Browning's

Theory of Love" (*The Personalist*) arranges sixty-eight poems of Browning which treat of love, and analyzes his various moods. W. O. Raymond presents "Browning's Conception of Love as Represented in *Paracelsus*" (Michigan Academy). In the field of prose fiction Cornelius Weygandt's *A Century of the English Novel* is one of the outstanding contributions of the year to literary history.

Contemporaries.—In the study of contemporary writers S. P. Chase has solved a mystery in "Mr. John Masefield: A Biographical Note" (*MLN*). He shows that the poet was born June 1, 1878, at Ledbury in Herefordshire, finds records of his parents and the family home as well as the home of the aunt who raised the Masefield children after the death of their father and mother. Ernest Brennecke is the author of a (somewhat misnamed) *Life of Thomas Hardy* and a book entitled *Thomas Hardy's Universe.* E. D. McDonald has compiled a *A Bibliography of the Writings of D. H. Lawrence.* Carl and Mark Van Doren have collaborated on a manual of *American and British Literature since 1890* intended both for schools and the general reader. N. J. O'Connor's *Changing Ireland: Literary Backgrounds of the Irish Free State, 1889-1922,* and Miss E. S. Duckett's *Catullus in English Poetry* (Smith) explain their purposes in their titles.

General.—A few more general titles may conclude this survey of a fruitful field. W. L. Cross's *An Outline of Biography from Plutarch to Strachey* is a charming pamphlet with a convenient list of good biographies; J. C. Knight's *Superlatives* is a discussion of interesting characters in literature in an attempt to interest students and other readers in the books themselves; C. T. Goode's and E. F. Shannon's *An Atlas of English Literature* is a useful book of reference; and Edith Wharton's *The Writing of Fiction* is a discussion of numerous problems in the art of story telling by one who has abundant right to speak on the subject.

GERMANIC LANGUAGES AND LITERATURE

By Friedrich Bruns
Professor at the University of Wisconsin

Before 1925.—Every student of German literature who returned to his task after the interruption of the World War must have been impressed by the new trend apparent in the more recent scholarly investigations. The old philological historical school no longer rules. Such works as Wilhelm Dilthey's *Das Erlebnis und die Dichtung* (1906), with its emphasis on the psychological interpretation paved the way. To Dilthey furthermore history of literature was Geistesgeschichte, i.e., history of the human spirit in its various manifestations. Another step forward is Friedrich Gundolf's *Shakespeare und der deutsche Geist* (1911). This book is a biography of German intellectual and spiritual life from the English Comedians to the Romantic School. No book on German literature of the last decade has aroused more discussion than Gundolf's *Goethe* (first publ. 1916, 12th edition, 1925), not a biography, but "Die Darstellung von Goethe's gesamter Gestalt." H. A. Korff *Geist der Goethezeit* (Vol. I, 1923) is another significant contribution. Fritz Strich, disciple of Heinrich Wölfflin, centers his approach to literature about the problem of style. In his *Deutsche Klassik und Romantik* (2d ed., 1924) he applies to literature the principle of Wölfflin that history of art is a history of style, that the spirit and the significance of an epoch is manifest in its style. Strich was preceded to some extent by the work of Oskar Walzel. Walzel is editor-in-chief of *Handbuch der Literaturwissenschaft*, which work is likely to become by far the best history of general literature, a worthy companion to the *Handbuch der Kunstwissenschaft*, by Fritz Burger.

Current.—In the publications of 1925 the chief interest has continued to center on the modern period. Even the Klopstock bicentenary in 1924 evoked but a faint echo. Emil Ermatinger's interpretation of the world-view of Grimmelshausen is the one work of note dealing with an earlier author. Of the works on Goethe, the Jahrbuch stresses Goethe's friendship with Karl August, since this year is the one-hundred-and-fiftieth anniversary of Goethe's going to Weimar. Goethe's relation to Berlin and Potsdam is the theme of a book by Otto Pniower.

This year is the centenary of Jean Paul's death. Three biographies bear witness to the revived interest in Jean Paul: Walter Harich, Johannes Alt and Friedrich Burschell. Besides these Ernst Hartung has shaped an autobiography out of Jean Paul's letters and E. Behrend is editor of a *Jean Paul-Jahrbuch.* To the numerous biographies of Heinrich von Kleist, Friedrich Braig adds one with a distinctly new note: an interpretation of Kleist from the philosophy of Fichte and Christian mysticism. Of the later Romanticists the new edition of Heine by Ernst Elster with its carefully revised text, new biographical introduction and critical notes will be indispensable to the scholar. Thus far the first four volumes have been published. The new edition of Ermatinger-Baechtold *Kellers Leben, Briefe und Tagebücher* contains a great deal of new material.

The centenary of Conrad Ferdinand Meyer is marked by the publication of a biography by Harry Maync. A far less ambitious but most enjoyable little book is the essay by Robert Faesi: compact and complete and never a mere dry summary. The austere art of Stefan George is ably interpreted by Hermann Drahn.

Of the more general works the most important are a history of the German drama by Robert F. Arnold in collaboration with five other scholars; the revised and enlarged second edition of E. Ermatinger's history of German lyric poetry from Herder to the present, and Albert Soergel's description of the latest phase of German literature, continuing his well known book: *Dichtung und Dichter der Zeit.* E. A. Boucke is revising Hettner's *Literaturgeschichte des 18ten Jahrhunderts.* Publication has begun. Paul Merker and Wolfgang Stammler have begun the publication of their *Reallexikon der deutschen Literaturgeschichte.* The German Biographical Year Book, discontinued in 1914, has resumed publication. The present volume covers the period from 1914-1916. What would have been the crowning achievement of the late Albert Köster's career, the history of German literature during the eighteenth century, must remain a fragment. The chapters published deal with the age of rationalism. The struggle between the poet and the censor is the theme of an extensive work by H. H. Houben.

Translations.—A truly astounding phase of German literary activity is the great number of translations. Aside from individual works we find three new translations of Balzac: Insel (Leipzig), E. Rowohlt, and Globus (Berlin); one each of Zola (Wolff—München), Gobineau (Matthes—Leipzig), and Théophile Gautier (Avalun—München).

The interest in things Russian continues unabated. To the two complete translations of Dostojewski (Piper and Insel) is added a third (L. Ladyschnikow—Berlin). This same firm is publishing a new translation of Tolstoy, while the Propyläen-Verlag is sponsoring a complete Turgeniew. A Viennese publisher (Anton Schroll) announces a translation of the selected works of Lope de Vega. Volume VI is just off the press. A Munich firm (Buchenau und Reichert) has undertaken a translation of the works of R. L. Stevenson. Thus Goethe's concept of a world literature still seems a living ideal.

Fiction.—From the great mass of prose fiction Thomas Mann's *Der Zauberberg* stands out supreme and well deserves the attention it has received. Gerhart Hauptmann's latest novel, *Die Insel der grossen Mutter*, is available in an English translation by Willa and Edwin Muir (Viking Press). Does it deserve this attention? A new tragedy of Hauptmann's *Veland* is just off the press. The last volume of Stefan George bears the title *Tage und Taten* (Bondi—Berlin).

BOOK TITLES

WALZEL, Oskar (editor-in-chief).—*Handbuch der Literaturwissenschaft.* (Akad. Verlagsgesells. Athenaion, Potsdam, 1923.)

ERMATINGER, E.—*Weltdeutung in Grimmelshausens Simplicius Simplicissimus.* (Teubner. Leipzig.)

GOETHE - JAHRBUCH. — (Band II. Goethe-Gesellschaft, Weimar.)

PNIOWER, Otto.—*Goethe in Berlin und Potsdam.* (Mittler. Berlin.)

HARICH, Walter.—*Jean Paul.* (Haessel, Leipzig.)

ALT, Johannes.—*Jean Paul.* (Beck, München.)

BURSCHELL, Friedrich.—*Jean Paul. Die Entwicklung eines Dichters.* (Deutsche Verlagsanstalt, Stuttgart.)

HARTUNG, Ernst (editor).—*Jean Paul. Ein Lebensroman in Briefen.* (Langewiesche-Brand, Ebenhausen.)

BEHREND, E. (editor).—*Jean Paul-Jahrbuch.* (Vol. I, Rosenberg. Berlin.)

BRAIG, Friedrich. — *Heinrich von Kleist.* (Beck, München.)

HEINE, H.—*Sämtliche Werke herausgegeben von Ernst Elster.* (Baende I-IV, 2. Auflg., Bibliogr. Institut, Leipzig.)

ERMATINGER-BAECHTOLD. — *Gottfried Kellers Leben, Briefe und Tagebücher.* 3 vols., Cotta, Stuttgart, 1924, 1925.)

MAYNC, Harry.—*Conrad Ferdinand Meyer und sein Werk.* (Huber, Frauenfeld.)

FAESI, Robert.—*Conrad Ferdinand Meyer.* (Haessel, Leipzig.)

DRAHN, Hermann.—*Das Werk Stefan Georges. Seine Religiosität und sein Ethos.* (Hirt, Leipzig.)

ARNOLD, Robert F.—*Das deutsche Drama.* (Beck, München.)

ERMATINGER, Emil.—*Die deutsche Lyrik seit Herder.* (3 vols., Teubner, Leipzig.)

SOERGEL, Albert.—*Dichtung und Dichter der Zeit. Neue Folge. Im Banne des Expressionismus.* (Voigtländer, Leipzig.)

HETTNER, Hermann. — *Literaturgeschichte des 18ten Jahrhunderts.* (Vieweg & Sohn, Braunschweig.)

MERKER, P., und STAMMLER, W.—*Reallexikon der deutschen Literaturgeschichte.* (Lieferungen 1-4. de Gruyter, Berlin.)

Deutsches Biographisches Jahrbuch.—*Überleitungsband 1914-16.* (Deutsche Verlags-Anstalt, Stuttgart.)

KÖSTER, Albert.—*Die deutsche Literatur der Aufklärungszeit.* (Winter, Heidelberg.)

HOUBEN, H. H.—*Verbotene Literatur von der klassischen Literatur bis zur Gegenwart.* (Vol. I, Rauch, Dessau.)

ROMANCE LANGUAGES

BY GEORGE L. HAMILTON
PROFESSOR AT CORNELL UNIVERSITY

FRENCH

Books.—A few books, and numerous articles, during 1925, have covered nearly the whole range of French literature. Of these only the most significant can be noted here. Most important for linguistic studies, is D. S. Blondheim's *Les Parlers judéo-romans et la Vetus latina. Etude sur les rapports entre les traductions bibliques en langue romane des Juifs au moyen-âge et les anciennes versions:* introduction to elements of all the Romance languages. Two contributions to the most important *genre* of Old-French literature, the epic, are worth noting. Lucy M. Gay, writing on *La Chanson de Roland* and *La Chanson de Willame* (*U. W. St., 20, 21-43*), takes issue with Professor Wilmotte's thesis that the latter of these poems was a plagiarism of the former, and Helen F. Rubel in her article, "Chabham's Penitential and its Influence in the Thirteenth Century" (*P. M. La. A.* 40, 225-239), has done the good service of establishing the date, earlier by a century, than that generally accepted, of a *locus classicus* in regard to the jongleurs as the authors and propagators of *chansons de geste.*

Articles.—Suggestive articles have appeared on the Arthurian romances. Particularly original and enlightening are those of R. S. Loomis. Treating of "Medieval Iconography and the Question of Arthurian Origins" (*M. L. N.*, xl, 65-70), he is insistent on the value of archeological evidence in confirming, supplementing and correcting literary tradition, and he presents a concrete example of its value in studying "The Story of the Modena Archivolt and its Mythological Roots" (*R. R.*, vol. 15, pp. 266-84). J. J. Parry, discussing "The Date of the *Vita Merlini*" (*M. Ph.*, xxii, 413-415), puts it after 1150. The same writer in "Celtic Tradition and the *Vita Merlini*" (*Ph. Q.*, vol. 4, pp. 193-197), finds a common source for the poem, and other versions of its story, in a lost original, a thesis he supports in his edition of the *Vita*, p. 138. (University of Illinois Studies in Language and Literature, vol. 10, No. 3). J. P. W. Crawford, in an article on "El horóscopo del hijo del rey Alcaraz en el *Libro de buen Amor*" (*Revista de filología española*, vol. 12, p. 184), has noted Spanish analogues of an episode in the *Vita*, the prophecy of the threefold death, and A. H. Krappe, in "The Sparrows of Cirencester" (*M. Ph.*, vol. 23, pp. 7-16), reviews the literature of a widely spread folktale, alluded to in the same work. The same writer in a "Note sur un épisode de *l'Historia Britonum* de Nennius" (*Revue celtique*, vol. 41, pp. 181-188), studies the story of "The Tower of Vortigern," which passing into the *Historia* of Geoffrey of Monmouth, and thence into the *Seven Sages*, furnishes an indication of the date of the latter work, as he shows in his "Studies on the *Seven Sages of Rome*" (*Archivum Romanicum*, vol. 8, pp. 386-407). C. Grimm, in "Chrétien de Troyes' Attitude towards Woman" (*R. R.*, vol. 16, pp. 236-243), finds in the varying treatment by the poet of this theme, a key to the chronology of the poet's works, a subject to which is devoted U. T. Holmes "Remarks on the Chronology of Chrétien de Troyes" (*Ibid.*, pp. 43-53).

J. R. Rheinhard, in a long study on "*Amadas et Idoine*" (*R. R.*, vol. 15, pp. 179-265), notes its place in the courtly epic, and its possible Celtic sources, and has published a Picard verse translation of the miracle, "Bread offered to the Child Christ" (*P. M. L. A.*, vol. 40, pp. 93-97), and a useful bibliography of the literature of miracles. To the latter may now be added T. F. Crane's edition of the *Liber de miraculis Sanctae Dei Genetricis Mariae. Published at Vienna, in 1731 by Bernard Pez, O. S. B. With an Introduction and Notes and a Bibliography of the Writings of T. F. Crane* (*Cornell Univ. Studies in Romance Languages*, vol. 1), L. Allen has published an edition of *De l'Hermite et del Jongleur; A Thirteenth Century Conte pieux*, p. 81, Paris, and C. H. Livingston, in his study of "*The Fabliau des deux Anglois et de l'Anel*" (*P. M. L. A.*, vol. 40, pp. 217-224), publishes two unknown analogues, an *exemplum*, and one of the *Cent Nouvelles Nouvelles* of Philippe de Vigneulles, a lost work, discovered by the writer of the article in an unique manuscript. P. G. C. Campbell has published *L'Épitre d'Otnea, Étude sur les sources de Christine de Pisane*, p. 170, Paris, and a supplementary article "Christine de Pisane en Angleterre" (*R. L. C.*, vol. 5, pp. 659-670).

Modern Literature.—Later are Grace Frank in "The Early Work of Charles Fontaine" (*M. Ph.*, vol. 23, pp. 47-60), calls attention to a collection of unpublished poems. H. C. Lancaster, has a note on "Leading French Tragedies just before the *Cid*" (*M. Ph.*, vol. 23, pp. 375-378), and publishes with the collaboration of some of his pupils, (*Chryséide et*

Abbreviations.
J. E. G. Ph.: Journal of English and German Philology; M. L. N.: Modern Language Notes; M. L. R.: Modern Language Review; M. Ph.: Modern Philology; Ph. Q.: Philological Quarterly; P. M. L. A.: Publications of the Modern Language Association; R. H. C.: Revue de Littérature comparée; R. H. L.: Revue de l'Histoire littéraire de la France; R. R.: Romanic Review; U. W. St.: University of Wisconsin Studies in Language and Literature.

Arimand. Tragi-Comédie de Jean Mairet (1625), (*Johns Hopkins Studies in Romance Literatures and Languages*, vol. v). C. Searles discusses the authorship of the anonymous "*Discours à Cliton*" (*Ph. Q.*, vol. 4, pp. 224-230), while G. L. van Roosbroeck has added a new item, illustrative of the same literary quarrel, in "Un document inconnu sur la 'Querelle du Cid,' l'Anatomie du Cid" (*R. H. C.*, vol. 30, pp. 242-252), and has contributed a number of notes of great critical value on "The 'Unpublished' Poems of Mlle. de Scudéry and Mlle. Descartes" (*P. M. L. A.*, vol. 40, pp. 155-168), "The Early Version of the *Comédie des académies*" (*M. L. N.*, vol. 40, pp. 20-25), and "Poems erroneously attributed to Chapelain, Corneille, J. B. Rousseau, La Fontaine, etc." (*Neophilogus*, vol. 11, p. 815).

Eighteenth Century Period.—The following are particularly informing. Thus, van Roosbroeck's "*Persian Letters* before Montesquieu" (*M. L. R.*, vol. 20, *pp.* 432-433), throws new light on an old subject, while F. C. Green, approaching the same work from a different angle, in "Montesquieu the Novelist and Some Imitations of the *Lettres Persanes*" (*Ibid.*, pp. 32-42), shows that it is an attempt to write a novel in letter form, and notes other novels with the same frame-work. The same writer gives an interesting account of a forgotten prolific author of novels, the forerunner of the *roman feuilleton*, in "The Chevalier de Mouhy, an Eighteenth Century French Novelist" (*M. Ph.*, vol. 22, pp. 225-237), while he deals with a more general problem in his "Further Evidence of Realism in the French Novel of the Eighteenth Century" (*M. L. N.*, vol. 40, pp. 257-270). These articles may be considered as complements of a book of distinction by the same author: *La peinture des moeurs de la bonne société dans le roman français de 1715 à 1761*, p. 260, Paris. Van Roosbroeck has published "Notes inédites de Voltaire" (*R. L. C.*, vol. 3, pp. 5-8), and Krappe wishes to find one of "The Sources of Voltaire's *Zaïre*" (*M. L. R.*, vol. 20, pp. 305-309) in the *Ecatommiti* of Giraldi Cinzio. For the first time one finds a full discussion of a fundamental doctrine of Rousseau in G. R. Havens' "La théorie de la bonté chez J. J. Rousseau" (*R. H. L.*, vol. 31, pp. 629-642: 32, pp. 24-37, 212-225), of which one finds, what might be regarded as the criticism, in the same author's "The nature doctrine of Voltaire" (*P. M. L. A.*, vol. 40, pp. 852-862). F. A. Pottle has a note on "The Part played by Horace Walpole and James Boswell in the Quarrel between Rousseau and Hume" (*Ph. Q.*, vol. 4, pp. 351-363). An important work for the history of ideas in France and United States is G. Chinard's *Jefferson et les idéologues* (Johns Hopkins Studies, etc., extra vol. 1).

Nineteenth, and Contemporary Literature. — Many suggestive contributions have been made. J. C. Blankenagel writes on "Goethe, Madame de Staël, and Weltliteratur" (*M. L. N.*, vol. 40, pp. 142-148), while P. Kaufman makes a brave assault on a much discussed literary problem in "Defining Romanticism: A Survey and a Program" (*M. L. N.*, vol. 40, pp. 193-204). A bit of Sainte-Beuve's uncanny information is confirmed in R. Fouré's "Le mariage de Chateaubriand" (*M. L. N.*, vol. 40, pp. 476-480). Much insight into the literary methods of the great French novelist is shown in R. P. Bowen's "Balzac's Interior Descriptions as an Element in Characterization" (*P. M. L. A.*, vol. 40, pp. 289-301), and the sources or analogues of the works of two of the realistic novelists have been noted by A. Coleman, "Some Sources of Flaubert's *Smarh*" (*M. L. N.*, vol. 40, pp. 205-215), Louise B. Dillingham, "A Source of *Salammbô*" (*Ibid.*, 71-76), and Krappe, "*La Chèvre de M. Seguin et l'Ecbasis*" (*R. L. C.*, vol. 3, pp. 365-367).

H. A. Smith in a book, *The Main Currents of Modern French Drama* (N. Y.), vol. 15, p. 320, gives a good deal of information, and judgments which are generally sound upon the French drama since Victor Hugo, while one particular feature of it is studied by Louise Delpit in her *Paris Théâtre contemporain; rôle prépondérant des scènes d'avant-garde* *depuis trente ans*, p. 125 (Smith College Studies in Modern Languages, vol. 6, nos. 1 and 2).

PROVENÇAL

W. P. Shepard has published an excellent critical edition of *Les Poésies de Jausbert de Puycibot* (*Classiques français du Moyen-âge*, vol. 46, pp. 18-94), and has performed the same service for "Two Provençal Tenzoni" (*M. Ph.*, vol. 23, pp. 17-28) of Aiméric de Péguilhan and Albert de Sisteron. O. H. More writes on "Bertran de Born et le Jeune Roi" (*Romania*, vol. 51, pp. 46-75).

ITALIAN

R. D. Austin in his "Dante Notes, VII., Fear no sops" (*M. L. N.*, vol. 40, pp. 339-342), finds the explanation of *suppe* (*Purg.*, vol. 33, p. 38), in Pietro Dante's *Commentary*, where it is glossed by "offa," *i.e.*, "honey-cake," the word used in the episode of the *Aeneis*, the source of the English phrase, "a sop to Cerberus." As illustrative of a fundamental doctrine of the *nuovo stil nuovo*, and of Dante, may be noted G. M. Vogt's "Gleanings for the History of a Sentiment. Generositas virtus, non sanguis" (*J. E. G. Ph.*, vol. 24, pp. 102-124). Ruth S. Phelps, in *The Earlier and Later Poems of Petrarch's Canzoniere* (Univ. of Chicago Press), makes a new and striking contribution to the arrangement of the *Canzoniere*. H. L. Stein, in "The 'Laurea' Note in the Light of the *Secretum*" (*R. R.*, vol. 16, pp. 257-261), attributes the famous note in the poet's copy of Virgil, written on the occasion of Laura's death, to a forger, who used phrases of the *Secretum* in its composition. A. S. Cook has written on the "*Odyssey*, Seventh Book as Known to Petrarch" (*Ph. Q.*, vol. 4, pp. 25-38). A. H. Wilkins, in "The Genealogy of the Genealogical trees of the *Genealogia deorum*" (*M. Ph.*, vol. 23, pp. 61-65), points out that the work of Boccaccio contained the first non-biblical charts in which stems, branches and leaves appear. Krappe would find "The Source of *Novellino*" (vol. 28) (*Neuphilologische Mitteilungen*, vol. 26, pp. 13-18), in an Irish tale. R. Altrocchi publishes the text of "A New Version of the Legend of Saint Alexis" (*M. Ph.*, vol. 22, pp. 337-352). R. S. Phelps, in "The Sources of Lorenzo's *Sacra Rappresentazione*" (*Ibid.*, vol. 23, pp. 29-42), shows the indebtedness of this work to Latin saints' lives, and to a collection by an unidentified French compiler "Nicolas," and Lucile W. Ferguson, in "The Date of the *Raccolta Aragonese*" (*Ibid.*, vol. 23, pp. 43-46), confirms the conjectural date of 1476, assigned to Lorenzo's collection of early Italian poetry. The story, of which a variant is found in Straparola's *Piacevoli notti* (vol. 3, p. 5), has been studied by Ella Bourne, "The Medieval Wanderings of a Greek Myth" (*J. E. G. Ph.*, vol. 24, pp. 184-196).

SPANISH

The publication of the critical apparatus in the second volume of K. Pietsch's *Spanish Grail Fragments, Commentary* (University of Chicago Press), makes it possible to judge of the processes by which the editor has established his rewritten, rather than critical text, published a year earlier. The second volume of R. H. Keniston's *Garcilaso de la Vega* (Hispanic Society), contained a well conceived, and well executed critical text of the author's works, with the critical apparatus, notes and bibliography. W. S. Hendrix has written on *Some Native Comic Types in the Early Spanish Drama* (Ohio State University Studies. Contributions in Languages and Literatures, No. 1). A. R. Nykl in "*Los Primeros Martires del Japon and Triunfo de la Fé en los Reinos del Japon*" (*M. Ph.*, vol. 22, pp. 305-323), dates the first of these works in 1618, and, in tracing its sources, indicates the use made of the second work, in supplying local color. H. C. Heaton, in "The Case of *Parte XXIV* de Lope de Vega, Madrid" (*Ibid.*, pp. 283-303), shows reasons why this publication, known only through Antonio's description, cannot be considered as one of the genuine *Partes*, while G. L. Dale in "*Las Cortes de la Muerte*" (*M. L. N.*, vol. 40, pp. 276-

281), establishes the fact that this *auto*—a hotch-potch of other *autos*—is wrongly attributed to Lope. W. L. Fichter indicates "The Source of Lope de Vega's *El Castigo del discreto*" (*R. R.*, vol. 16, pp. 185-186), in a *novella* of Bandello (*Ibid.*, p. 35), and C. E. Anibal in "'Voces del cielo,' a note on Mira de Amescua" (*Ibid.*, pp. 71-86), calls attention to the literary device of using words, or phrases, casually uttered, as mysterious warnings to the protagonists of the author's dramas. R. H. Williams in his "Notes on the Anonymous Continuation of *Lazarillo de Tormes*" (Ibid., pp. 223-235), presents arguments to show that the episode of the continuation belonged originally to the *Segunda Parte*, from which it had been omitted from fear of the censor. The publication by C. E. Kano of "Cinco sainetes inéditos de Don Rámon de la Cruz con otro á él attribuito" (*Revue hispanique*, vol. 40), and *Ocho sainetes inéditos de Don Rámon de la Cruz*, p. 205 (University of California. Publication in Modern Philology, vol. 13, no. 1), adds much to our knowledge of this prolific and popular dramatist. M. A. Buchanan, in "Further Notes on *Pan y Toros*" (*M. L. N.*, vol. 40, pp. 30-32), establishes an earlier date for this early nineteenth century satire.

G. T. Northup has published *An Introduction to Spanish Literature* (Univ. of Chicago Press), distinguished by its well organized plan, and its succinct summing-up of its subject. S. G. Morley, in "Modern Uses of *Ser* and *Estar*" (*P. M. L. A.*, vol. 40, pp. 450-489), presents a comprehensive treatment, well documented, of the uses of the two verbs; while J. R. Gillet, writing on "The Spanish idiom *fondo en*" (*M. L. N.*, vol. 40, pp. 22-23), gives a new explanation of a curious syntactical construction. A. M. Espinosa in "La sinalefa entre versos en la versificación española" (*R. R.*, vol. 16, pp. 103-121), and in "La compensación entre versos en la versificación" (*Ibid.*, pp. 306-329), has made important contributions to Spanish versification, to which F. O. Reed has added something in a more limited field in his "The Calderonian Octosyllabic" (*U. W. St.*, vol. 20, pp. 73-98).

ANCIENT LITERATURE AND PHILOLOGY

I. LATIN LITERATURE

By John C. Rolfe

Professor at the University of Pennsylvania

Popularizing the Classics.—Both in this country and abroad much attention is devoted at present to popularizing the study of the Classics, and to emphasizing their value in our educational system. This is done in part by making the Latin writers accessible in readable and at the same time accurate translations, with a trustworthy text on the opposite page. The *Loeb Classical Library* (Putnam) has issued about 150 of its handy volumes, of which sixty, or thereabouts, are devoted to Latin writers. One of the recent additions is *Velleius Paterculus*, by F. W. Shipley, and in the same volume the *Res Gestæ Divi Augusti*, the great inscription in which the emperor recorded his personal account of the important events and accomplishments of his long reign. Fragments of another copy of this document have recently been found at Pisidian Antioch. Another new volume contains the *Tristia* and *Epistulæ ex Ponto* of Ovid, by A. L. Wheeler, introduced by an account of Ovid's career which, with Wheeler's *Topics from the Life of Ovid*, in A. J. P.,[*] xlvi, pp.1-28, is a real contribution to a difficult subject. A third volume gives us Frontinus' valuable work on the aqueducts of Rome (*De Aquis*) along with the *Strategemata*. This translation, by the late Professor Charles E. Bennett, was seen through the press by his former pupil, Professor McElwain of Smith College. In France the Association Guillaume Budé, in addition to other classical publications, issues a series of translations on the same general lines as the Loeb, but with more attention to text-criticism and a fuller critical apparatus. In Spain the Fundació Bernat Metge, of Barcelona, announces a series of translations into Catalan, of which several volumes have already appeared.

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[*] Periodicals are cited as follows: *A.J.P.*, *American Journal of Philology; C.J.*, *The Classical Journal; C.P.*, *Classical Philology; C.Q.*, *Classical Quarterly; P.Q.*, *Philological Quarterly; T.A.P.A.*, *Transactions of the American Philological Association.* A complete bibliography is not attempted.

Relation to Modern Civilization.—Interest in things Roman, and incidentally in the study of Latin, is stimulated besides by books which stress the indebtedness of our modern civilization and culture to those of the Greeks and Romans. This purpose is set forth in the title of the series called *Our Debt to Greece and Rome* (Marshall Jones Co., Boston), in which twenty-three of the projected fifty volumes have now appeared. Recent additions are *Roman Private Life and its Survivals*, by W. B. McDaniel, and *Ancient and Modern Rome*, by the venerable archæologist and senator, Rodolfo Lanciani. The former differs from the ordinary books on Roman private life in calling special attention to the similarity of many customs and beliefs of the modern Italians to those of their Roman forefathers. *Stoicism*, by R. M. Wenley; *Mythology*, by Jane Harrison, and *Architecture*, by A. M. Brooks, are of interest to students of both the classical languages. Books which indirectly teach the same lesson are Grant Showerman's *Eternal Rome* (Yale University Press), Elizabeth Haight's *Horace and his Enjoyment of Life* (E. P. Dutton), and numerous others. That these efforts in behalf of the Classics are justifiable, and even necessary, at the present time is pointed out by S. E. Bassett in his presidential address to the American Philological Association (*C. W.*, xviii, p. 193 ff.); for while the men of most influence to-day are more or less steeped in the Classics and recognize their value in education, when the younger generation assumes complete leadership of thought, there is a danger of a decline in Classical influence. The movement does not represent a different class of laborers in the field, but the authors of such works are also productive in research. In fact, the popular works could not be written by men untrained in investigation. One may perhaps see a favorable sign in the large number of *Classical Articles in Non-Classical Periodicals*, lists of which appear at frequent intervals in *C. W.* In the Loeb Library, Cicero's *De Senectute, De Amicitia and De Divinatione* is the work of a busy lawyer, W. A. Falconer; and T. S. Jerome, former American consul at Capri, has given us a very suggestive book on *Aspects of the Study of Roman History* (Putnam). It may be said without fear of exaggeration that the leading men of our country are convinced of the value of Classical studies, and not a few of them have put themselves on record to that effect. A recently published example is a letter from Woodrow Wilson, at the time a Professor at Bryn Mawr, to the late M. S. Slaughter (*C. J.*, xxi, 3), in which he answers the perennial question, "How can Cæsar be made interesting?" In the same number (p. 11 ff.) C. Pharr, while admitting that Cæsar is the best available prose writer for his place in the curriculum, somewhat needlessly urges the substitution of Ovid.

Report of Classical Investigation.—Teachers of Latin, not content with attempting to inspire the general public with an interest in their work, have been trying also to set their house in order, and render their work more effective, especially by the Classical Investigation undertaken by the American Classical League, under the efficient leadership of Dean West. The results of this survey have been made public in a *General Report* of 302 pages (Princeton University Press), containing valuable statistics, along with recommendations looking to improvements in the school curriculum and in methods of teaching. Another volume gives an account of *The Classics in England, France and Germany*. [The establishment of a summer session of the Classical School of the American Academy in Rome, under the direction of Dr. Showerman, offers to teachers who are unable to spend a longer time in foreign lands the inspiration of study in Italy, an opportunity of which advantage has been taken by a large and increasing number of present and future teachers. The student of to-day has not only the advantage of attractive and handsomely illustrated text-books, but also of lantern-slides (including moving pictures) and all kinds of illustrative material. Two sets of *Phonographic Records of the Roman Pronunciation of Latin* have been produced for his use and are subjected to a somewhat searching criticism in *C. W.*, xviii, pp. 209-213.

Literary Research.—Notwithstanding the time devoted to writings of a popular character, and in spite of a stream of text-books, inspired in part by the recommendations of the Classical Investigation, research has not been neglected. A survey of the recent literature in that line shows increasing variety in the subjects treated, noteworthy activity on the part of women, and somewhat more attention to investigation by teachers in the secondary schools. The text-criticism of the *Letters* of the younger Pliny has been the subject of numerous papers and has given rise to not a little controversy. The merits of the ten-book, the nine-book and the eight-book families of manuscripts, and the trustworthiness of the Aldine editions, have been warmly debated. Two recent articles are *The Eight-book Manuscripts of Pliny's Letters*, by S. E. Stout (in *T. A. P. A.*, lv, pp. 62-72), and *On the 1508 Aldine Pliny*, by Blanche Boyer and J. Dorjahn (in *C. P.*, xx, 50-56). C. U. Clark (*A. J. P.*, xlvi, p. 95) concludes that Aldus was a careful and conscientious scholar, and that the Aldine edition is our most trustworthy witness to the text of the ancient *codex Palatinus*. As usual, a goodly number of articles are devoted to Horace. Lily Taylor (in *A.J.P.*, xlvi, 161-170) revives a view which was held by some scholars in the past, but has been generally ignored in more recent times, that Horace's appointment as a tribune in the army of Brutus gave him permanent equestrian rank. While the most is made of such evidence as is available, it seems doubtful whether an appointment by an assassin of Julius Cæsar would have been recognized by Augustus, or that Horace, in spite of his well-known independence, would have cared to call attention to his former military service with the regicides by assuming the insignia of a Roman knight; not to mention other difficulties. C. Knapp (in *C. W.*, xix, pp. 11-12) presents an analysis of Horace's first satire (i.1), with the view of showing its coherence. T. Frank (in *C. P.*, xx, 26 ff.) has some interesting notes on *Horace's References to Augustus*, involving a new interpretation of Ode xvi in Book iii, and in *A. J. P.*, xlvi, 72-74 he finds a description of a scene in Lucilius in *Serm.* i.5. 85-88. D. L. Drew (in *C. Q.*, xix, 159-164) discusses *Horace, Odes i.12 and the Forum Augustum*, expressing the opinion that Horace made his selection of personal names from a particular section of the portrait gallery of Augustus' "Hall of Fame" (*cf.* Vergil, *Aen.* vi, 703-892), registering a protest against the honor shown to Mars Ultor and the victors at Philippi, perhaps as a "grim and secret jest upon the emperor." In the same periodical (xix, 43 ff.) E. Hancock examines Horace's use of the singular *nos*. The careful study of *Archilochus and the Victims of his Iambics*, by G. L. Hendrickson (*A. J. P.*, xlvi, 101-127), is of interest to students of Horace, as is also the paper of H. Klingelhöfer, *De Livii Capite*, vii.2 (*P. Q.*, iv, 321-344). M. Deutsch continues his interesting studies in Cæsar by *The Murder of Cinna, the Poet* (*C. J.*, xx, 326 ff.) and *Veni, Vidi, Vici* (*P. Q.*, iv, 151 ff.).

Novels and Poetry.—Blanche Brotherton (in *T. A. P. A.*, lv, 128-136) shows that the combination of the hole-in-the-wall motif in the *Miles Gloriosus* of Plautus, combined with an additional trick for bringing about the union of the lovers, is found in oriental tales and was probably used in the Greek original which

Plautus followed. The much discussed question of the origin of the novel of Petronius is the subject of a paper by B. C. Perry (in *C. P.*, xx, 31-49), who finds it in the comic romance, which he believes to have existed in Greece before the days of Petronius. The poetry, declamations, *fabulæ*, and scenes from real life are Roman additions. He classes the work, not as satire, but as a romance influenced to some extent by satire. Petronius was not a moralist, but wrote merely to entertain. An extensive and interesting study of a literary motif to which little or no attention has heretofore been given is B. M. Ogle's *Dame Gossip's Rôle in Epic and Drama* (*T. A. P. A.*, lv, 90-119). He makes a distinction between *Fama*, personified in Vergil's *Æneid*, iv, 173 ff., and representing "a mixture of truth and falsehood tinged with malice," and *fama* in the sense of "a true account, though resting on no definite authority, of actual events." *Fama* in the passage cited brings about a complete change in action and leads to the catastrophe. This is a literary device which Vergil uses nowhere else, and which he did not owe to Homer. He is followed in his personification of *Fama* by Ovid, who did not, however, make Gossip the force which brought about the catastrophe, and unskillfully by the later epic poets. D. L. Drew (in *C. Q.*, xix, 37-42) concludes an article (begun in xvii, pp. 73 ff.) maintaining that the *Copa* preceded the *Eclogues* and giving some further evidence for its Vergilian authorship. In this connection R. B. Steele's *Non-Recurrence of Vocabulary as a Test of Authorship* (*P. Q.*, iv, 267 ff.) is suggestive. W. P. Mustard continues his studies in the Latin writers of the Renaissance by an edition of the *Eclogues* of Antonio Geraldini (Johns Hopkins Press), and A. R. Anderson (in *C. W.*, xviii, 175 ff. and 201 ff.) writes of *Three Modern Latin Epigrammatists:* John Owen, Henrick Harder and Ludwig Halberg.

Miscellaneous.—An interesting article in a different line is E. S. McCartney's *Magic and Weather in Classical Antiquity* (*C. W.*, xviii, 157-159), with a wealth of reference to the sources, and B. Meinecke (*C. W.*, xviii, 157-159) compares the battles of Cannæ and Tannenberg. Works dealing with first-hand material are: *A Latin Document from Egypt*, by H. A. Sanders (in *T. A. P. A.*, lv, 21-54); *The Use of Classical Writers in the Libri Manuales* (text-books in manuscript form and "compendia for mature private study"), by Eva Sanford (in *T. A. P. A.*, lv, 190-248); and E. A. Lowe's presentation of *Some Facts about our Earliest Latin Manuscripts*, forty-seven in number (in *C. Q.*, xx, 197 ff.).

The dissertations presented for the degree of Ph.D. at our various universities are not only a promise of future productiveness, unfortunately not always fulfilled, but an indication of the interests of the professors under whose supervision they are written. C. Knapp (in *C. W.*, xviii, pp. 129-132, 137-142, and 153-154) adds to the lists, published in *C. J.*, of dissertations from 1900-1912 (including some that were not printed) a list of those published between 1912 and 1921, which it is to be hoped may be continued. They are 203 in number and show a great variety of subjects. The references to the lists in *C. J.* are given by Knapp on p. 130.

II. GREEK LITERATURE

By H. Lamar Crosby

Professor at the University of Pennsylvania

One of the most marked tendencies of the day is the endeavor to popularize the life and letters of ancient Greece. This may be accounted for in part by changed conditions in the teaching of Greek both here and abroad; but in part also by a reawakening to the permanent value of the Greek contribution to our civilization. Within the past year the Loeb Classical Library has added to its already extensive collection of

Greek texts with English translation the following volumes: *Aristophanes,* in the famous version of B. B. Rogers; *Homer's Iliad,* Vol. I, by A. T. Murray; *Lucian,* Vol. I, by A. M. Harmon; *Plato,* Vol. III, by H. N. Fowler and W. R. M. Lamb; *Polybius,* Vol. IV, by W. R. Paton; *Strabo,* Vol. III, by H. L. Jones; and *Xenophon, Scripta Minora,* by E. C. Marchant.

Handbooks.—A readable series of handbooks is issuing from the press of the Marshall Jones Company under the joint editorship of G. D. Hadzsits and D. M. Robinson with the general title, *Our Debt to Greece and Rome.* The following volumes, devoted wholly or partly to Greek, have already appeared. In 1922: *Biology and Medicine,* by Henry Osborn Taylor. In 1923: *Aristotle's Poetics,* by Lane Cooper; *Greek Religion,* by W. W. Hyde; *Language and Philology,* by R. G. Kent; *Warfare by Land and Sea,* by E. S. McCartney; and *Mathematics,* by David Eugene Smith. In 1924: *Architecture,* by Alfred M. Brooks; *Mythologies,* by Jane E. Harrison; *Platonism,* by Alfred Edward Taylor; *Sappho,* by D. M. Robinson; *Stoicism,* by Robert Mark Wenley. In 1925: *Aristophanes,* by Louis E. Lord; *Aristotelianism,* by John L. Stocks, and *Homer,* by John A. Scott.

Serving a very similar purpose is E. P. Dutton's series entitled *The Library of Greek Thought,* under the general editorship of Ernest Barker, of which the following volumes are now in print: *Greek Economics,* by M. L. W. Laistner; *Greek Religious Thought,* by F. M. Cornford; *Greek Historical Thought,* by Arnold J. Toynbee; *Greek Literary Criticism,* by J. D. Denniston; *Greek Ethical Thought from Homer to the Stoics,* by Hilda D. Oakeley; and *Greek Social Life,* by F. A. Wright.

The Oxford University Press in 1924 added to its series entitled *The World's Manuals: Ancient Greece,* by Stanley Casson; *Greek Art and Architecture,* by Percy Gardner and Sir Reginald Blomfield; *The Genius of the Greek Drama,* by C. E. Robinson.

R. W. Livingstone, *The Legacy of Greece* (Clarendon Press, 1921), in which were printed notable essays by various distinguished scholars, was followed in 1923 by his *The Pageant of Greece* (Clarendon Press), reissued in abridged form in 1925, in which are given in English dress characteristic passages from Greek literature.

Translations.—Mention should be made also of E. B. Osborn's *The Heritage of Greece and the Legacy of Rome* (Doran, 1924), and *Greek Literature in English Translation,* by George Howe and G. A. Harrer (Harper and Brothers, 1924). E. P. Dutton likewise has recently brought out three volumes of *Broadway Translations* (no date): *The Girdle of Aphrodite,* by F. A. Wright; *Poets of the Greek Anthology,* by F. A. Wright, and *Theocritus, Rion and Moschus,* by J. H. Hallard.

The *Songs of Sappho,* translated into rimed verse by Marion Mills Miller, Greek texts prepared and annotated and literally translated in prose by D. M. Robinson (Maxwelton Co., 1925), is a most ornate edition of that fascinating author. Unfortunately only the wealthy could hope to possess a copy.

While it is hardly to be expected that Aristotle can become truly popular, the Oxford University Press is to be commended for its publication of an English version in charge of W. D. Ross, the eleventh volume of which appeared in 1924: *Rhetorica,* by W. Rhys Roberts; *De Rhetorica ad Alexandrum,* by E. S. Forster; *De Poetica,* by Ingram Bywater. They likewise issued in the same year *The Roman Questions of Plutarch,* translated by H. J. Rose, with introductory essays and a running commentary.

Greek Life and Thoughts.—W. C. Greene's *The Achievement of Greece* (Harvard Univ. Press, 1923) is a most attractive exposition of some of the noteworthy features of Greek civilization, written with sympathetic understanding. Equally to be commended is *Greek Life and Thought,* by La Rue Van Hook (Columbia Univ. Press, 1923). T. R. Glover's *Herodotus* (California Univ. Press, 1924) puts vividly before the reader the unique charm of that prince of storytellers and affords a most valuable picture of the conditions under which he lived and wrote.

We welcome several old friends in

new editions. Jowett's translation of the *Dialogues of Plato*, the plates of which had been lost during the war, received a photographic reproduction in 1924 (Clarendon Press). Gilbert Murray's *Five Stages of Greek Religion* (Columbia Univ. Press, 1925) is a revised and enlarged edition of his well-known *Four Stages of Greek Religion.* The Harvard University Press has given us a new edition (1925) of C. H. Moore's instructive volume, *The Religious Thought of the Greeks from Homer to the Triumph of Christianity.* The fourth edition of *The Greek Commonwealth*, by A. Zimmern, came from the Clarendon Press in 1924. We note also a welcome revision of *Smith's Classical Dictionary of Greek and Roman Biography, Mythology and Geography* (Murray, 1924). The revision is the work of G. E. Marindin. Of special interest to the world of scholars is a revised and enlarged edition of Liddell and Scott's *Greek-English Lexicon.* The work is in the hands of H. S. Jones, who, with the assistance of Roderick McKenzie, has already issued Part I: Α-'Απο βαινω (Oxford Univ. Press, 1925). The sixth edition of the invaluable *Geschichte der griechischen Literatur*, by Wilhelm von Christ, was completed in 1924 by Stählin. That work is in so large a measure enlarged and revised as to deserve to bear the name of the reviser rather than that of the original writer.

Greek Texts.—Among recent editions should be noted Diehl's *Anthologia Græca*, fasc. V. and VI (B. G. Teubner, 1924-5), *Aristotle's Metaphysics*, a revised text with introduction and commentary, by W. D. Ross (Oxford Univ. Press, 1924); Plato's *Euthyphro, Apology and Crito*, with notes, by John Burnet (Oxford Univ. Press, 1924); *Sophoclis Fabulæ*, a critical edition by A. C. Pearson (Oxford Univ. Press, 1924). In the field of papyri, the sixteenth volume of *Oxyrhynchus Papyri*, non-literary texts of the late Byzantine period (Oxford Univ. Press, 1924); C. H. Oldfather's *The Greek Literary Texts from Greco-Roman Egypt* (University of Wisconsin Studies in the Social Sciences and History, 1924), Robert Helbing's *Auswahl aus griechischen Papyri* (Berlin, 1924). The Clarendon Press in 1924 and 1925 published two very imposing volumes from the pen of Walter Scott under the title, *Hermetica.* It consists of a corpus of Greek and Latin writings from Egypt, dating from the Roman Empire, containing religious and philosophical teachings ascribed to Hermes Trismegistus. The work is furnished with an English translation and full commentary and should prove of high interest to students of that period of religious conflict and unrest.

Homeric study still maintains its perennial interest. The third edition of Gilbert Murray's well known *Rise of the Greek Epic* came from the Oxford Univ. Press in 1924. The writer's position has not changed notably from that maintained in his first edition. Adolph Roemer in *Die Homerexegese Aristarchs in ihren Grundzügen* (Ferdinand Schoeningh, 1924) attempts a fresh appraisal of the significance of Aristarchus in connection with the text of Homer. That the well-known mechanical formulæ for the dissection of the poet have not yet been completely discarded is evidenced by a two-volume work entitled *Homers Odyssee* (Buchenau and Reichart, 1925). Vol. I is the work of Dörpfeld and sets forth his views as to the composition of the poems of Homer in Europe prior to the great migrations to Asia Minor. Each poem is conceived as originally covering a period of ten days. Vol. II is a German translation of the Odyssey by Heinrich Rüter, in which he attempts to portray that work as conceived by Dörpfeld. T. W. Allen's *Homer, The Origins and the Transmission* (Clarendon Press, 1924) deserves more extended notice than is here possible. He examines with scientific care several of the moot points of Homeric criticism; but perhaps the most novel contribution of the book is his detailed study of the work of Dictys, on the basis of which he concludes that Homer utilized an old chronicle, perhaps contemporary with the Trojan War. The significance of such a theory can scarcely escape the reader. R. J. Cunliffe's

Lexicon of the Homeric Dialect (Blackie and Son, 1924), while in no wise displacing the familiar works of Ebeling and of Gehring, should prove of real value to people of English speech who essay to read Homer in the original. Grace R. Macurdy's *Troy and Pæonia* (Columbia Univ. Press, 1925) should be of interest to the student of Homer.

Greeks in Spain.—Vol. VI of *Bryn Mawr Notes* (Longmans, 1925) is a very suggestive brochure by Rhys Carpenter on a phase of Greek activity concerning which the evidence is extremely scanty. In *The Greeks in Spain* he combines with inimitable skill the fragmentary testimony of legend and archæology to piece out a picture of the early Greek voyages to Hesperia. An important feature of the little book is the convincing identification of the ancient Hemeroskopeion with the modern Punta de Ifach, an identification based upon a personal acquaintanceship with the particular region in question.

SEMITIC PHILOLOGY AND LITERATURE

By George A. Barton

Professor at the University of Pennsylvania

The Field.—Through Assyriology the field of Semitic philology has been extended beyond its natural and legitimate bounds. The Assyrian language and the Akkadian dialect of ancient Babylonia were Semitic, but another language contained in the cuneiform script, the Sumerian, is studied only by Semitic scholars. Early in 1925 Professor Edward Chiera of the University of Pennsylvania, acting as Annual Professor in the American School of Oriental Research at Bagdad, conducted an excavation at Tar Khelan, on the southeastern border of ancient Assyria, where he discovered the palace of a wealthy man and an archive of about a thousand clay tablets, inscribed in the cuneiform character, and in early Assyrian. These tablets have recently reached the University of Pennsylvania, and promise to open a new vista in the history of the ancient East, as they contain many non-Semitic proper names.

Because the tablets found by the late Professor Winckler at Boghaz Koi, the old Hittite capital in Asia Minor, in 1906 were written in cuneiform, they, too, are studied primarily by Semitic scholars, although their language is Hittite, an Indo-European tongue. Early in 1925 the present writer in the 4th edition of his *Archæology and the Bible* published a translation of a Hittite code of laws, the text of which was found on some of the tablets from Boghaz Koi. Several American scholars had previously discussed phases of the philological relations of Hittite, but with this work America begins to share in the work of interpreting Hittite texts.

Literature.—The fifth volume of the *Annual of the American Schools of Oriental Research* appeared in September, 1925. It contains a number of important articles, but they treat archæological material rather than subjects connected with the languages and literatures of the Semitic peoples.

The year 1925 has been rather a lean one so far as publications in Semitic Philology and Literature are concerned. Professor D. D. Luckenbill's important volume, *The Annals of Sennacherib* (University of Chicago Press), appeared in 1924. The Yale University Press expects to publish in December a volume by Dr. Arch Tremayne, a pupil of Professor Clay, entitled *Records from Erech, Time of Cyrus and Cambyses*. This will constitute one of the volumes of the Yale Oriental Series and will conform in scholarship and execution to the high standard of that series. The texts will consist of business documents and it will add interesting material to our knowledge of Babylonian business and private life.

Professor J. M. P. Smith of the University of Chicago has published an excellent little book, *The Prophets and Their Times*, University of Chicago Press, 1925, which will be a valuable aid in helping many to understand and enjoy the prophetic literature of the Old Testament.

INDO-EUROPEAN PHILOLOGY

By Roland G. Kent
Professor at the University of Pennsylvania

Linguistic Society.—The outstanding event of the year has been the formation and development of a new learned society, the Linguistic Society of America. Through the energy of an organizing committee consisting of L. Bloomfield, G. M. Bolling, and E. H. Sturtevant, a call for a meeting was issued over the signatures of twenty-nine scholars in linguistic subjects. The meeting took place on December 28, 1924, at the American Museum of Natural History, in New York City, and was attended by over seventy-five persons. The name of the society was selected, a constitution adopted, officers elected, and four scientific addresses were delivered. The officers for 1925 are as follows: President, Hermann Collitz (Johns Hopkins Univ.); Vice-President, C. D. Buck (Univ. of Chicago); Secretary and Treasurer, R. G. Kent (Univ. of Pennsylvania); Executive Committee, the preceding, and Franz Boas (Columbia Univ.), O. F. Emerson (Western Reserve Univ.), E. H. Sturtevant (Yale Univ.); Committee on Publications, G. M. Bolling (Ohio State Univ.), A. M. Espinosa (Stanford Univ.), Edward Sapir (Ottawa; now Univ. of Chicago).

The purpose of the Society is, in the words of its constitution, "the advancement of the scientific study of language." Before its formation, linguistic scholars were divided among various organizations, such as the American Oriental Society, the American Philological Association, the Modern Language Association, the American Anthropological Association, and others of a more special character; there was no organization in which they might all meet, no matter what the languages of their special interests might be, and there was no special organ for the publication of their research. The new society, accordingly, plans to remedy this by bringing together at its annual meetings the scholars in linguistics and by providing a series of publications devoted to their studies.

Thus the work of the society during 1925 has been of a twofold nature: the consolidation of the membership, which is now considerably above 300, and the establishment of media of publication, a journal and a series of monographs. The journal *Language*, appearing quarterly, is already a fixture, for the third issue appeared in September and the fourth in December, despite the difficulties of getting under way at the start. The series of monographs will appear at irregular intervals, according to the material offered and the financial strength of the society; the first monograph was distributed toward the end of November. The Linguistic Society has received much favorable notice in the journals of other organizations, notably one in the *Bulletin de l'Association Guillaume Budé* (Paris), No. 9 (Oct., 1925), pp. 49-54.

Problems.—The scholarly output of the year is scattered over the entire field, in the usual manner, and the most important articles are listed below, in the bibliography. The chief single subject which has attracted general attention is the nature of the accent in Latin and the manner of reading Latin verse; for the verse stress, whatever its character, does not systematically accord with the accent in the individual words. To explain this disagreement, certain scholars regard our conventional method of reading Latin verse, with a disregard of the word accents, as wrong; and believe that the prose stresses should be kept, while the quantitative differences of the syllables establish the rhythm. Others think that the word accent of the educated Roman was an accent of pitch or higher musical note, and the metrical accent was one of energy, so that there was no conflict between the two.

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Indo-European. — [Abbreviations: *AJP*, American Journal of Philology; *CP*, Classical Philology; *CW*, The Classical Weekly; *JAOS*, Journal of the American Oriental Society; *Lang.*, Language; *TAPA*, Transactions of the American Philological Association.]

General Linguistics

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Sapir, E.—*Sound Patterns in Language; Lang.* i, 37-51—a corrective to mechanical interpretation of results secured by instrumental measurement of speech-phenomena.

Weiss, A. P.—*Linguistics and Psychology* (*Lang.* i, 52-57).

Comparative Indo-European

Petersen, W.—*The Adnominal Genitive* (*AJP*, xlvi, 128-160).—He concludes that the uses of the case can be understood best if the adnominal genitive be regarded as an uninflected form used for the attributive determination of one substantive by another.

Bloomfield, M.—*On a Case of Suppletive Indo-European Suffixes* (*Lang.* i, 88-95).—He discusses the uses and mutual competition of the suffixes *-u-* and *-ro-* in adjectives.

Indic Studies

Brown, W. N.—Review of F. Edgerton's *Panchatantra Reconstructed* (*AJP*, xlvi, 186-190).—He considers that Edgerton's work puts Panchatantra studies on a new basis.

Edgerton, F.—*The Panchatantra Reconstructed.—An attempt to establish the lost original Sanskrit text of the most famous of Indian story-collections on the basis of the principal extant versions; text, critical apparatus, introduction, translation.* Two volumes, American Oriental Society, New Haven, 1924; being volumes ii and iii of the *American Oriental Series.*

Edgerton, F.—*The Bhagavad Gita or Song of the Blessed One: India's Favorite Bible.* (Open Court, Chicago, 1925)—An interpretation.

Hopkins, E. W.—*Words of Defamation in Sanskrit Legal Language* (*JAOS*, xlv, 39-50).

Iranian Studies

Jackson, A. V. W.—*The Doctrine of Metempsychosis in Manichæism;* (*JAOS*, xlv, 246-268).

Ware, J. R., and Kent, R. G.—*The Old Persian Inscriptions of Artaxerxes II and Artaxerxes III* (*TAPA*, lv, 52-61).

Hittite and Lydian

Sturtevant, E. H.—*The Hittite Tablets from Bhogaz Kevi* (*CW*, xviii, 171-175).

—— *Remarks on the Lydian Inscriptions* (*Lang.* i, 69-79).

Hellenic

Bates, W. N.—*Notes on the Dating of the Homeric Poems* (*AJP*, xlvi, 263-267). The Homeric poems are now proved to be archæologically accurate, but they do not mention the Dorian invasion, and so must ante-date that event. Their language is that of the Achæans, as the Greek are called in the poems; and this same language, Achæan or Homeric Greek, should be the language of the late tablets of Cnossus, in "linear script B."

Buck, C. D.—*Epigraphical Notes* (*CP*, xx, 133-144). Notes on some Greek dialect inscriptions, after personal examination of the originals.

Italic

Bassett, S. E.—*The Cæsura—a Modern Chimæra* (*CW*, xviii, 76-79).

Kent, R. G.—*On the Reading of Latin Verse* (*CW*, xviii, 144).

—— *The Oscan Curse of Vibia* (*CP*, xx, 243-267).

—— *Final Æ in Latin Case-Forms* (*Lang.*, i, 103-106).

Knapp, C.—*The Cæsura in Latin Hexameter Poetry* (*CW*, xviii, 73-75).

NAPP, C.—*The Cæsura Once More* (*CW*, xviii, 121-123).
HIPLEY, F. W.—*Hiatus, Elision, Cæsura, in Virgil's Hexameter* (*TAPA*, xlv, 137-158).
TOUT, S. E.—*On the varying constructions used with invideo* (*CP*, xx, 145-154).
STURTEVANT, E. H.—*Accent and Ictus in the Latin Elegiac Distich* (*TAPA*, xlv, 73-89).
TAYLOR, G. H.—*A critical examination of the phonograph records of spoken Latin pronounced by S. H. Weber and by B. L. Ullman* (*CW*, xviii, 209-213).

INTERNATIONAL AUXILIARY LANGUAGE

BY ROLAND G. KENT

PROFESSOR AT THE UNIVERSITY OF PENNSYLVANIA

General Approach.—The need of a eady means of communication among ll men has been more than ever ealized since the World War multilied and intensified international retions. The demand is no longer for universal language which is to relace existing languages, but for an uxiliary language, which shall be the rst language learned after the other-tongue. The chief languages hampioned for this use have been nglish, French, Latin, and artificial nguages, of which the chief are speranto, Ido, and Flexionless Latin.

The most significant development this field within recent months as the formation, in 1924, of the nternational Auxiliary Language ssociation in the United States, c.," though the actual formation as due chiefly to the interest and e energy of Mrs. Dave H. Morris, New York City. Of this organition, known as the I A L A, the esident is E. B. Babcock, Dean of e Graduate School and Head of the partment of Romance Languages d Literatures in New York Unirsity; the vice-president is J. J. rty, Vice-President of the American legraph and Telephone Company. s purpose, as stated in its charter, to promote study of the questions nected with the I A L, as the inrnational auxiliary language is lled; to work for governmental cognition of the problem, and for ation of an international commisn of experts authorized to select I A L; to further in every way recommendations of this commisn.

The Association starts with the premise that the I A L must be the best possible language for the purpose, and that therefore it is quite certainly a language not yet in existence; that a large amount of research and experimentation must be carried on, before the perfect I A L can be found. It plans a work of research, experimentation, and propaganda, on a very elaborate scale, with a budget of $300,000 for the first five years, during which a fund will be raised whose income will care for the later expenses; the extended activities and the dissemination of the results calls for a further expenditure of $1,500,000. It now has an office, a full-time office secretary, a part-time general secretary (Dr. H. N. Shenton, of the department of sociology in Columbia University), and two part-time research assistants. It raised the funds necessary for carrying on the Thorndike experiment in the controlled teaching of Esperanto and Ido, and entrusted the administration of the funds to Teachers' College (Columbia University). The first tests were made in the autumn of 1925, at Vassar College, with two groups of fifteen students each, studying Esperanto; and at Mt. Holyoke College, with a class in Ido. The I A L A has distributed much mimeographed and printed material (Bulletin No. 1, May, 1925), and maintains a sales department for literature on the subject. In the summer, its representatives held many conferences with representatives of the various artificial languages, at Geneva and elsewhere, for the purpose of securing coöperation in the work of investigation and research.

Various attempts have been made to formulate an international language, including Volapuk, which is an Esperanto no longer current.

1. **Esperanto.** — The headquarters for information is the Esperanto Association of North America (Miss E. J. Meriam, Secretary), Pierce Building, Copley Square, Boston, Mass. Official journal in America, *Amerika Esperantisto*, published monthly at the same address.

About seventy-five periodicals in Esperanto are published in different countries. Esperanto is regularly used for radio broadcasting, at certain hours and certain days, at eight stations in Germany, two each in Paris and Melbourne (Australia), one each in Vienna, Copenhagen, Rome, Moscow, Barcelona, Geneva, Victoria (B. C.), though twelve of the nineteen are merely for Esperanto lessons. The International Amateur Radio Conference at Paris, April 14-18, by a heavy majority recommended Esperanto for international radio communication, and adopted it as an auxiliary language of the conference in addition to English and French. In May, two other International Conferences for the Use of Esperanto were held in Paris, one for its use in the Pure and Applied Sciences (under the Patronage of the French Association for the Advancement of Science), the other for its use in Commerce and Industry (convened by the Paris Chamber of Commerce). Each was attended by representatives from about thirty countries. The annual International Congress of Esperantists met in Geneva, on August 2 and the following days, with a large attendance.

Practically every country of Europe saw its own Esperanto congress in 1925. In this country, the Eighteenth Annual Esperantist Congress was held in Cleveland, in the summer; that of 1926 will be in Philadelphia. Courses in Esperanto are reported at the following institutions (though not given credit for college degrees): Vassar College, Univ. of Minnesota (Extension Div.), Stanford Univ., Mass. State Dept. of Education (Univ. Extension Div.; certificate granted), Case School of Applied
Science (Cleveland), Antioch Coll
(Yellow Springs, O.), Montezu
Mountain School (Los Gatos, Ca
required for two years; entra
credit given by Stanford Univ
There are local Esperanto societ
in many cities, which, among ot
activities, conduct classes in the su
ject. There has been a limited u
of Esperanto in broadcasting in t
country. Many books are publish

Among articles published this ye
on Esperanto, in non-Esperant
journals, are the following:

BUTMAN, M.—"The Internatio
Key" (*Zion's Herald*, April 2
reprinted in *Journal of Educati*
May 31).

SAYERS, J. D.—"Esperanto the N
World Language" (*Current H*
tory, September).

2. **Ido.**—A center for informati
on Ido in this country is Mr. A.
Angman, 1018 Louisa St., Elizabe
N. J., general secretary of The I
ternational Language (Ido) Socie
of America. This society was est
lished in June of the present ye
The Fourth International Congress
Idists was held in the city of Luxe
bourg, August 9-12, with delega
present from many countries.
September, an international conf
ence of Idists was held at Tur
Italy, with representatives from se
eral countries, and in the same mon
a conference of Ido authorities w
held in Geneva. The present offic
organ of Ido is *Mondo*, issued mont
ly in Stockholm.

In January, 1926, was publish
at Stockholm, Sweden, an Intern
ciona Radio-Lexiko, or "Internation
Radio Lexicon," by K. Feder and
Nordin, in Ido, German, Englis
French, Spanish, and Italian, with
separate alphabetical index in Sw
dish; this is said to be the first i
ternational standardization of rad
terminology for professionals a
amateurs. In America, *La Presse*,
French daily journal of Montreal, b
gan in 1924 the use of Ido in i
broadcasting, in addition to Engli
and French. A course in Ido (wit
out credit toward the college d
gree) is being conducted at M
Holyoke College, under the Thorndi

experiment of the I A L A; courses are planned at schools in Lakewood, N. J., and in Lakeville, Conn. E. F. McPike of Chicago has been lecturing on Ido, both with the use of the stereopticon and by radio. He has founded an Ido Club in his own city.

3. **Arulo.**—Center for information in this language is Dr. Max Talmey, 266 W. 113th St., New York City. This is claimed to be an improvement on Ido, better adapted for exact uses, scientific and literary, because it is being carefully worked out by competent linguists and logicians. An English hand-book of Arulo is due to appear in December, 1925, under the title, *Arulo, Text Book of the Universal Language, with Exercises and Specimen of a Dictionary.*

4. **Nov-Esperanto.**—The center for nformation in this country is Mr. E. P. Harlow, World Language Bureau, 1320 Ninth St., Washington, D. C. This language is a project of R. de Saussure, essentially Esperanto without the diacritical marks, and with a few other minor changes. Its author first proposed Esperantida, which occupied a middle ground between Esperanto and Ido, but has given that up in favor of a very slightly modified Esperanto, since he was unable to reconcile Esperantists and Idists by his first proposal. There has been no general congress of its advocates.

5. **Occidental.**—This is a project of Dr. de Wahl. There is a journal of he same name. The grammar is xtremely simple, and the vocabulary is chosen for its internationality.

6. **Latino sine Flexione.**—This creation of Prof. Peano of Turin, Italy, is essentially a Latin with endings emoved. The society for its propaation calls itself Academia pro Inerlingua, of which Prof. Peano is President; its journal, bearing the ame name, appears at Turin about ix times a year. Its work has been one by correspondence, publication, nd special conferences. A North merican branch of the Academia has een established, with V. L. Lowe Bureau of Standards, Washington, . C.) as secretary-treasurer, who ill give information on this lanuage. Radio Pamphlet No. 1 of the War Department has been translated into Latino sine Flexione, with the title *Principios Elementario de Radiotelegraphia et Telephonia.* A two-volume dictionary of English and "Interlingua," as its supporters prefer to call it, is being prepared.

7. **Latin.**—A form of Latin approximating that used in medieval times has been advocated by the American Classical League and by others, but there were no developments in 1925. Information may be secured from R. G. Kent, Univ. of Pennsylvania, Philadelphia.

8. **English.**—Present English is recognized as a prominent competitor for the position of I A L, because of its extremely wide use in commerce, even outside the countries where it is the mother-tongue. A simplified English is advocated as the I A L, by J. W. Hamilton of St. Paul, Minn., founder and executive secretary of the International Magna Charta Day Association; it is termed by him Cosmo-English, but the form which the simplification is to take has not even been agreed upon by its adherents.

9. **French.**—There seems to be no specific propaganda in favor of French, although it is the only modern language besides English which need be seriously considered in this connection. Its claims, together with those of English, are presented favorably by G. de Reynold in the *Revue de Genève* for May and June, 1925, along with a plea for further consideration of the qualifications of Latin, and a condemnation of the artificial languages.

Difficulties.—The weakness of the I A L movement is that there are too many competitors; and the partisans of the different artificial languages are not infrequently quite hostile to one another's projects. Possibly the I A L A, which is not championing any particular language, will improve the situation. But it is an undeniable fact that no artificial language is spoken by a hundredth of the number who speak English or French; and quite possibly commercial use will make English the real I A L, since it is already the international language of the sea, and is the secondary language in many countries. On the other hand, Sapir, of the University of Chicago, in *The Romanic Review* (vol. 45, pp. 244-56), argues in favor of an artificial language far simpler than any yet proposed; and memorandum has gained the appro of such eminent associates as Bloomfield, F. Boas, J. L. Gerig, a G. P. Krapp.

MODERN LANGUAGES

BY REINHOLD EUGENE SALESKI

PROFESSOR AT THE UNIVERSITY OF DELAWARE

Basis of the Study.—The importance of linguistic study to the world in general does not lie in discovering or preserving facts or systems of facts that might as well be lost, but rather in patiently gathering, arranging, and comparing the material that will some day show how far all of us are bound to a particular style of thought and appreciation by the habit of the particular language we speak. A slow, perhaps subconscious realization of this fact, has led to the gradual recognition of two considerations: that the philosopher and linguist must work together, even be united, as far as may well be, in the same person; and that no language can be so primitive or decadent as not to furnish a valuable insight into the question of the power of linguistic symbolism over human thinking.

Wundt was the first to emphasize the first idea, and it is much rarer now that we hear the professional philosopher and linguist expressing antagonism towards each other; or, if they do feel it, they are like Paul and Vendryes, philosophizing, psychologizing, while denying the rights of other philosophers or psychologists in their midst. Drawn into this wider view of their science, willy-nilly, is every linguist today; Jespersen and Vossler avowedly so. This is especially noticeable in the school of Brugmann and Streitberg, the *Junggrammatiker:* in the former's recent contribution to syntax; in the latter's general encouragement of all broader treatments of the subject, as is evident from the articles in the publication in his honor. On the other hand, the youngest generation of linguists, instead of being irritated at the endless labor of gathering minute details of grammar, real that this is the necessary foundati for any deeper understanding of la guage, and begin to believe that who has not mastered the strict sci tific method of this minute labor sure to go astray in his broader co clusions.

Living and Dead Languages. Recognition of the value of the stu of any language is part of the ce tury-old doctrine of modern philolo but only in the last generation h the study of modern languages beg to play an important rôle. The n tive language, of course, and its a joining languages students and sch ars have always studied for th own sake—so Grimm; but the rea zation of the value of living la guages, in spite of the earlier scho of W. von Humboldt and Steinth is only now beginning to take effe It has always been their practi value, as means to another end, th has made such language pedago cally important and brought them the foreground in the eyes of the g eral public. A living language h one inestimable advantage: that can become acquainted with it in its accentuations and modulations, all its insinuations and connotatio which are more important sometim than the actual word. The dead la guages we still must study, not on to understand the living historica but to observe their own and perha different place in a different stage civilization. All this infinite co parison is necessary in order to deci some day in how far we *can* spe as we think, and in how far we *mu* think as we speak.

American Interest.—In Ameri the tendency to this broader inter in language is showing itself in th ways: by publications on the general aspects of language, by the formation of the Linguistic Society of America, both discussed by Dr. Kent above; by an increasing study of American Indian languages; and by an interest, still nascent, in the languages of the Far East. A force less tangible is the attitude of investigators towards their subject-matter. Under the auspices of the American Council on Education a "Modern Foreign Language Study" is being made on a plan similar to that completed for Latin. Perhaps this will show us whether the academic emphasis on modern languages today is more than practical, or whether here lurks also a feeling for the finer shades and more exact results made possible by the presence of the living subject.

Indo-Germanic Group.—*Germanic Languages.* The greatest amount, as well as the greatest number of contributions and greatest diversity of subject-matter, will, no doubt, always be found in the native language. We have books on the "best" English both from the English and the United States' point of view, colloquial English, slang, pronunciation, Anglo-Saxon; articles semantic, morphological, lexical. A growing interest in place-names should be noted. Considerable interest in American English is evident, a subject on which Chicago University and the Modern Language Association have both undertaken an extended investigation. Meanwhile the first number of *American Speech* appeared in October. There is no work, however, that stands out preëminently as does Flom's *Language of the Konungs Skuggsja.* With many other contributions and reviews Professor Flom has kept the place of Scandinavian languages and scholarship constantly before us. German contributions have been meagre. We should note, however, the very laudable beginning made by Lambert in gathering and interpreting the non-English words in the Pennsylvania dialect. We have here an opportunity of linguistic research which we do not yet fully realize: of observing "language in the making," or, if you will, already made; at any rate, so new that most of the operations are still transparent. But we should also list the English words in such dialects and the frequency of both, and look likewise for grammatical forms and especially for syntax. Then we shall perhaps see some of the practical advantages that the one language or the other had among the early settlers.

Romanic language study is chiefly represented by the two volumes of Karl Pietsch. This is an old translation (1313) from French into a language fundamentally Castilian "with Portuguese-Gallician and Leonese elements."

Slavic is not represented this year by notable works; this is an indication of how dependent our scholars are on their pedagogical activity.

American Languages.—Besides the dialect of the Pennsylvania settlers we have within our doors scores of aboriginal languages, the languages of the Red Indian. Some of these are rapidly dying out; all, no doubt, rapidly changing. They are so different from our Indo-Germanic languages as to be well-nigh incomprehensible. The careful and persistent work of the present school of investigators, judging by Professor Boas' *Introduction* to the first volume of the *Smithsonian Handbook*, promises to take us a good way in the right direction. Owing to lack of funds the second volume was delayed till 1922. The material for a third is said to be ready. We may be thankful to Miss Reichard for rescuing from oblivion and establishing several matters in the language of the Wiyots. She made several trips, she tells us, seeking with much care the last speakers of this language, who seventy-five years ago were said to number a thousand. Mingling with other tribes, they adopt their language, so that it is very difficult to find some one who speaks pure Wiyot. This is the most recent of the invaluable series of monographs on American Archæology and Ethnology published by the University of California. *Language*, too, publishes a valuable article on Mexican Indian languages, indicating at the same time the importance of these inquiries and the breadth of its policy.

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Professor at the University of Delaware

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JEP.—*Journal of Experimental Psychology*, Vol. 8.

L.—*Language*, Vol. 1.

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MP.—*Modern Philology*, Vol. 23.

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By Francis G. Wickware

Editor, D. Appleton and Company

Sources of Information. — Few large American industries are as badly served as book publishing in the matter of statistics properly classified and sufficiently trustworthy to reveal major trends in production and consumption. As to the actual distribution of books, which is the real measure of reading interests and the final test of publishing success in satisfying them, no figures whatever are available. The biennial Federal census of manufactures, by persisting in lumping books with "pamphlets" in its schedules of printing and publishing, gives only general indications of the volume of book manufacture. And the Register of Copyrights reports no classification of the printed volumes entered for copyright which segregates new trade books or gives a subject grouping of new publications.

The lists issued currently in the *Publishers' Weekly*, the organ of the American book trade, are the only available source of reasonably complete and accurate data of the number and classification of new publications of more than ephemeral or local interest. These lists are compiled mainly from books or descriptions of books supplied by the publishers for record, supplemented by scrutiny of the bibliographical cards on new copyright entries distributed by the Library of Congress. They record a close approximation to the total output of American publications intended for general distribution through ordinary trade channels.

The tables below show also that in proportion to population the output of new publications in the United States is comparatively small. It is a common complaint that too many books are being published, and with it goes the implication that each year brings forth a greatly increased flood of new titles. American publishers can at least retort that both in numbers of new books issued and in rate of increase they are exercising much more restraint than their European confrères. The fact is that the number of new books issued in 1924 was below the output of 1904 and the 13 following years, and that it is only after 1921 that the annual issues of new books have exceeded since the War one-half the record output of 1910. The figures as recorded in the *Publishers' Weekly* since 1900 are as follows:

The *American Booktrade Directory* for 1925 lists 676 publishers in the United States. Probably less than a quarter of them, however, contributed more than 5 titles each to the 1924 totals of new books and new editions. The largest contribution of a single publisher to these totals was 539 titles, and the second largest, 365 titles. Three publishers contributed between 200 and 300 titles, and 11 between 100 and 200. These 16 houses issued 42 per cent. of the year's output of new books and new editions.

International Comparisons. — The total of 6,380 new books issued in the United States in 1924 was less than 55 per cent. of the output of the record year 1910, when the *Publishers' Weekly* recorded 11,671 new book titles. For the United Kingdom, however, the grand total of 12,706 publications in 1924 established a new record, higher by 327 titles than the output of the previous record year 1913. Comparisons between the totals of new publications in the two countries must be drawn with caution, for the standards of the British trade organ are somewhat less exclusive than those applied to the American compilation. Nevertheless the 1923 and 1924 figures clearly indicate that British publishing enterprise has fully recovered from the difficulties of the War and the following economic depression.

ANNUAL ISSUES OF NEW BOOKS IN THE UNITED STATES SINCE 1900

1900	4,490	1913	8,687
1901	5,496	1914	8,513
1902	5,485	1915	6,817
1903	5,793	1916	7,219
1904	6,971	1917	6,798
1905	7,514	1918	5,709
1906	6,724	1919	4,772
1907	8,925	1920	5,101
1908	8,745	1921	5,438
1909	10,193	1922	5,998
1910	11,671	1923	6,257
1911	10,440	1924	6,380
1912	10,135	1925 (11 months)	6,278

Parenthetically it may be noted that books by American authors were only 53 per cent. of the new books and new editions published in this country in 1900. During the following decade the proportion rose to 68 per cent. in 1910, and in 1915, the first year of the War, it was 85 per cent.

The proportion has receded slowly since the War, reaching 81 per cent. in 1920, but it is safe to predict that henceforth American authorship will supply at least three-fourths of the books published in the United States.

NEW PUBLICATIONS IN 1925

The final figures of new publications of 1925 will show substantial increases over the 1924 totals. The new books recorded by the *Publishers' Weekly* during the first 11 months totalled 6,278, and, judging by other Decembers, the total for the year will probably equal that of 1906 though still falling below that of 1904. The 1925 record of new publications by months was as follows:

	Total (11 months)
New publications:	
New books	6,278
New editions	1,403
Pamphlets	1,310
Total	8,991
Origin:	
American authors	6,829
English and other foreign authors	2,162

CLASSIFICATION OF NEW BOOKS BY SUBJECTS
January-November, 1925.
(*The Publishers' Weekly.*)

Philosophy	201	Business	190
Religion	664	Fine arts	137
Sociology	374	Music	69
Law	116	Games	98
Education	161	General literature	291
Philology	177	Poetry; drama	497
Science	273	Fiction	870
Technical books	289	Juvenile	432
Medicine	194	History	337
Agriculture	84	Geography; travel	309
Domestic economy	37	Biography	444
Miscellaneous	34		

At the end of November, religion, law, philology, agriculture, music, games, and biography had already exceeded the figures of 1924, and sociology, education, science, poetry and drama, fiction, and geography and travel were only slightly behind. Substantial increases are indicated in all these classes; business seems to be the only class likely to record a substantial decrease.

Classification, Years 1900–1924.— Fluctuations from year to year, however, are of little significance as indications of permanent shifts in reading interests. Even over long periods there are few important changes in the relative numerical importance of the various classes of new books. This is illustrated by the following percentage classification of the new books published in the United States in 1900, 1910, 1920, and 1924:

CLASSIFICATION OF NEW BOOKS BY SUBJECTS IN PERCENTAGES
1900-1924
(*The Publishers' Weekly.*)

Classification	1900		1910		1920		1924	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Philosophy	91	2.0	248	2.1	209	4.1	225	3.5
Religion	411	9.2	894	7.7	467	9.2	654	10.3
Sociology *	258	5.7	748	6.4	353	6.9	379	5.9
Law	513	11.4	620	5.3	70	1.4	65	1.0
Education	431	9.6	504	4.3	101	2.0	163	2.6
Philology	†	†	†	†	141	2.8	133	2.1
Science	160	3.6	644	5.5	182	3.6	274	4.3
Technical books	122	2.7	721	6.2	259	5.0	313	5.0
Medicine	146	3.3	369	3.2	132	2.6	219	3.4

* Including political science and economics.
† Included in other classifications.

CLASSIFICATION OF NEW BOOKS BY SUBJECTS IN PERCENTAGES—(*continued*)

Classification	1900		1910		1920		1924	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Agriculture	‡	‡	‡	‡	49	1.0	82	1.3
Domestic economy	64 §	1.4 §	287 §	2.5 §	22	0.4	43	0.7
Business	†	†	†	†	144	2.8	256	4.0
Fine arts	145 ‖	3.2 ‖	324 ‖	2.8 ‖	94	1.8	153	2.4
Music	¶	¶	¶	¶	44	0.9	48	0.8
Games	44	1.0	126	1.1	50	1.0	96	1.3
General literature	187**	4.2**	1,352**	11.6**	248	4.9	342	5.4
Poetry; drama	192	4.3	721	6.2	409	8.0	505	7.9
Fiction	616	13.5	1,303	11.1	778	15.2	871	13.6
Juveniles	482	10.7	935	8.0	410	8.0	449	7.0
History	221	4.9	526	4.5	503	10.0	353	5.5
Geography; travel	150	3.3	544	4.7	144	2.8	302	4.7
Biography	225	5.0	631	5.4	271	5.3	430	6.7
Miscellaneous	32††	0.7††	174††	1.5††	21	0.4	25	0.4
Total	4,490	...	11,671	...	5,101	...	6,380	...

* Including political science and economics.
† Included in other classifications.
‡ Included in "Domestic economy."
§ Including agriculture.
‖ Including music and illustrated gift books.
¶ Included in "Fine arts."
** Including collected works.
†† Including works of reference.

Fiction.—It is a second common complaint that fiction is absurdly predominant in contemporary publishing. As the form of recreational reading of widest appeal, the primacy of fiction in the classification of annual issues of new books is rarely challenged. Yet this table shows that in normal years the proportion of fiction is fairly stable at about 14 per cent. The low of 1910 and the peak of 1920 were due to more or less temporary causes; the end percentages of the 25-year period are practically the same.

Religion.—Religion, always prominent in the classification, now ranks next to fiction, and the two classes together account for nearly one-quarter of all the new books published. Philosophy in the quarter-century has practically doubled its proportion, and poetry and drama has steadily advanced from ninth place to fourth. Business now ranks with other professions in having a literature of its own. Law and education show startling declines, but it is probable that the declines are in large part fictitious, due to closer classification in the later years.

History and Kindred Subjects.—While the proportion of fiction has remained practically stationary during the quarter-century, the proportion of non-fiction books in the classes serving the interests of the general reader has increased by nearly one-half. The new titles in history and biography together now practically equal the output of fiction; the addition of geography and travel and poetry and drama gives a total of books for the general reader almost double the fiction titles. In 1900 these four classes constituted 17.5 per cent. of the year's total output; in 1924 the proportion was nearly 25 per cent. Here is clear indication of a growing interest in the more serious forms of recreational reading.

That there is a decided shift of reading interest towards these non-fiction classes, all general publishers are aware, and their lists are responding to the demands of the changing public taste. More impressive evidence of the extent and direction of the change would be supplied by properly classified census figures of book manufacture. The census classification is not nearly so detailed as the international classification followed by the *Publishers' Weekly*, and the inclusion of "pamphlets" with books limits the value of the census figures as indicators of trends in the demand for books. Still, there are in the following figures for the census years 1914, 1919, and 1923 some suggestions of interest.

Probably not half the annual totals are books. Still, it is noteworthy that, though it has increased 25 per cent. since 1919, fiction in 1923 was still 25 per cent. below the production of 1914; that juveniles trebled in the 9-year period; that religion and theology doubled; that history increased more than 150 per cent; and that total production in 1923 was double that of 1914. Our people are reading more, and they are reading more serious books.

CLASSIFICATION BY OUTPUT

PRODUCTION OF BOOKS AND PAMPHLETS IN THE UNITED STATES

Census Years 1914, 1919, 1923

Census Classification	Number of Copies Manufactured		
	1914	1919	1923
Fiction	39,598,501	24,317,643	30,014,162
Juvenile	16,399,881	24,434,912	49,679,895
General literature *	....	....	61,915,885
Poetry and drama	1,926,892	2,682,568	2,985,271
History	2,458,912	6,280,483	6,457,303
Religion and theology	24,411,502	36,496,230	48,193,861
Education	51,069,521	75,075,335	96,479,723
Law	1,701,602	2,254,861	3,662,777
All others	37,599,887	80,526,784	60,002,141
Total	175,166,698	252,068,816	359,391,018

* New classification in 1923, mainly drawn from "All others."

Book Prices. — This is notwithstanding that book prices are considerably higher than prevailed before the war. These higher prices are a third grievance commonly expressed against American publishers. Yet figures compiled by the National Association of Book Publishers in 1925 show that since 1914 the cost of composition has increased 78 per cent.; electrotyping, 100 per cent.; paper, 79 per cent.; press work, 186 per cent.; and binding, 18 per cent.— an average of 91 per cent; while the retail price of the average book has been increased only 55 per cent., notwithstanding a concurrent increase in the discounts allowed to booksellers. Publishers are working on a much smaller margin of profit than before the War, and the soundness of the industry rests on the facts that fewer books are being published and more books are being sold.

DIVISION XXXVII
THE ARTS

PAINTING

BY LEILA MECHLIN

SECRETARY, AMERICAN FEDERATION OF ARTS

Present Tendencies.—Progress cannot be measured by activity; but activity undoubtedly evidences life. This being true, American painting during the year 1925 has given abundant token of robust vitality. Furthermore, and this is exceedingly to its credit, the dominant note of American paintings as shown in current exhibitions during this twelve-months' period has been cheerfulness, and cheerfulness based on a healthy outlook and technical proficiency. The so-called Modernists were a gloomy lot and their works for the most part stressed ugliness rather than beauty. The reason for that movement was, no doubt, the fact that the pendulum had swung too far toward weak prettiness. Be that as it may, these madmen have rendered a service to contemporary painting by jarring the painters out of old ruts and inducing bolder and simpler expression. The majority of the paintings seen today in the great exhibitions are colorful, frank, concise statements, which get their message over very directly and not only please the eye but command respect. They indicate individually a youthful, vigorous outlook, a sensitive appreciation of beauty and particularly of color values; and, as a whole, an amazing amount of technical skill on the part of the painters. Among the notable occurrences in the field of painting in America this year which will set it apart permanently, the following deserve special attention.

Sargent.—April 15, the world was shocked by the announcement of the death of John Singer Sargent, one of the greatest portrait painters of our day, who died in his sleep at his London home. He was about to sail for the United States to attend certain ceremonies held by art organizations and associations, among which was the unveiling of his recently completed mural paintings for the Boston Museum of Fine Arts.

Sargent was born in Florence, Italy, in 1856, the son of Dr. Fitzwilliam S. Sargent of Boston, physician and author; and Mary Newbold, a member of a Philadelphia family. He never renounced his American citizenship, though he lived almost continuously abroad. His funeral, which was at his London home, was marked by great simplicity. The burial took place at Woking, 20 miles from London, in a picturesque country district. A memorial service was held for him later in Westminster Abbey. A memorial tablet to him is to be placed in St. Paul's Cathedral, London.

Through the generosity of Sir Joseph Duveen a new Sargent wing is being added to the Tate Gallery of London. This will contain all of the Sargent paintings in the possession of the British Nation, including, it is understood, the Wertheimer portraits from the National Gallery.

A memorial exhibition of Sargent's works was held in the Museum of Fine Arts, Boston, in November, at which time the mural decorations already referred to were unveiled. A handsome illustrated catalogue was published.

Other Losses.—In this same field other serious losses must be recorded. George Bellows, a dominant figure among American painters of the present day, died January 8, 1925, at the age of 42 years, after a short illness. A memorial exhibition of his works was held at the Metropolitan Museum of Art, New York, during November, at which time was issued a beautiful catalogue reproducing all of the works shown.

Willard L. Metcalf, the well-known landscape painter, died March 9. An exhibition of Mr. Metcalf's paintings was shown during the month of January in the Corcoran Gallery of Art, Washington.

Dwight W. Tryon, also distinguished as a landscape painter, died July 1, 1925. His estate was left to his widow during her lifetime. At her death it is to go to Smith College for the purpose of founding an art gallery there.

Centenary Exhibitions.—The National Academy of Design celebrated the centenary of its founding by an exhibition comprising paintings and sculpture by deceased and living members which was opened in the Corcoran Gallery of Art, Washington, on October 18, by the President of the United States, and was visited by 70,000 persons during the four weeks it was there on exhibition. From December 2 to January 3 the exhibition was shown in the Grand Central Galleries, New York. An elaborate illustrated catalogue was issued in connection therewith. For this exhibition Edwin H. Blashfield, President of the Academy, painted a large allegorical picture, "Academia."

Inness Centennial.—The centenary of the birth of George Inness was also celebrated this year; he was born at Newburgh, N. Y., May 1, 1825. In recognition thereof a loan exhibition of about thirty of his paintings, ranging from the '60's to his last period, was held in the late winter at the Macbeth Galleries, New York. Much of Inness' life was spent at Montclair, New Jersey. It was fitting, therefore, that on May 3 there should be held at the Montclair Art Museum a celebration commemorating the 100th anniversary of his birth. Here, too, a group of his canvases was exhibited. Edwin H. Blashfield, the President of the National Academy of Design, presided at the meeting.

In further recognition of this great event a memorial was dedicated on May 1 at Tarpon Springs, Florida. This took the form of a hall, in which exhibitions, music and other entertainment may be given. It was at Tarpon Springs that Inness spent many of his winters and painted some of his best pictures.

Five towns of North Dakota also celebrated the Inness Centennial by exhibitions of reproductive prints and special programs in the schools and colleges.

Other Exhibitions.—Witnessing to a lively interest in the art of painting and in appreciation of the best, mention may be made of a comprehensive exhibition of portraits by John Neagle (1796-1865) held in the Pennsylvania Academy of the Fine Arts through the coöperation of Mantle Fielding, from April 12 to May 13. This comprised 125 paintings lent by their several owners. An elaborate illustrated catalogue was issued.

A loan exhibition of Old Masters was held in the Carnegie Institute, Pittsburgh, from April 30 to June 5. These were drawn from twelve private collections.

A notable loan exhibition of Early American Portraits, Miniatures and Silver, assembled by a local committee, was set forth in the National Gallery of Art, National Museum, Washington, during the month of December. This was one of the most comprehensive exhibitions of the sort which has yet been held, and laid further emphasis on the value of, and increasing interest in the works of the early American period.

A notable loan exhibition of Dutch and Flemish paintings was held at the Detroit Institute of Arts in January.

Foreign Artists. Quite a number of foreign painters exhibited in the United States under the auspices of our several art museums during the year. Among these were Zuloaga and Anglada, Spaniards; Anders Zorn, deceased; and Count Louis

Sparre, of Stockholm, Sweden; Savely Sorine, a Russian artist; and Anna Ciardi, an Italian painter, and the brothers Zubiaurre, painters of Basque scenes. Besides which mention should be made of an exhibition of British art, retrospective and contemporary, held in the Grand Central Galleries, New York, under the auspices of the English Speaking Union.

Mural Paintings.—A number of important mural paintings were unveiled during the year, in addition to the Sargent series, to which reference has already been made. These comprised four huge lunettes by Jules Guérin in the banking room of the Union Trust Company, Cleveland, and a series by the same painter in the banking room of the Illinois Merchants Bank Building in Chicago.

Twelve large mural paintings by John W. Norton, depicting the evolution of man, were placed in Beloit College, Wisconsin, and dedicated June 20, the gift of Frank G. Logan, Vice-President of the Art Institute of Chicago.

A painting by Lee Woodward Zeigler, representing Maryland, was placed in the lobby of the Maryland Institute and unveiled at the Institute's Centennial Anniversary Celebration in June.

Mural paintings by George Laurence Nelson were unveiled at Public School No. 40, in the Bronx, New York, in the same month.

A series of mural paintings by George Obertauffer were placed in the Children's Room at the Art Institute of Chicago.

A series of nine mural paintings by William Clark Rice, entitled "The Procession of the Fashions" was presented to the Jonas Bronck School (Public School No. 43) New York City, during graduation exercises in June.

Sponsored by the Philadelphia Art Alliance there was unveiled in the new Walt Whitman Hotel in Camden, New Jersey, in September a mural painting by Robert E. Johnston, entitled "In a Dream I saw a City Invincible." This is a symbolic composition, the outstanding feature of which is the figure of the "good gray poet."

The Society of Mural Painters assembled and sent out as a travelin exhibition a comprehensive collectio of mural paintings, not only b Americans but by the leading mura painters of Europe. This opened i the Brooklyn Museum in February

At the annual meeting of the American Institute of Architects held i New York in April, the medal fo mural painting was awarded posthumously to John Singer Sargent Edwin H. Blashfield delivered a eulogy on the great artist. Th award for Mr. Sargent was made t Mr. Guy Lowell, a distant relative.

Fellowships and Medals.—The fellowship in painting of the American Academy in Rome was awarded t Michael Joseph Mueller of Durand, Wisconsin, a student of the Yale University School of Fine Arts, for a painting entitled "Eternal Life." The jury of award was composed of Edwin H. Blashfield, Ezra Winter, Eugene Savage, Francis C. Jones and Douglas Volk.

At the annual meeting of the American Academy of Arts and Letters in November the medal of the Academy was awarded to Cecilia Beaux for her distinguished work in painting. This is the first time that this medal has ever been awarded for painting.

Among numerous important purchases of paintings and gifts of paintings recorded during the past year are the following:—The Friends of American Art presented to the Art Institute of Chicago five important paintings. The John Herron Art Institute of Indianapolis received as a gift from the Friends of American Art of that city a "Portrait of Margaret MacKittrick" by Abbott H. Thayer. The Albright Art Gallery, Buffalo, purchased a painting by Abbott H. Thayer entitled "The Boy and the Angel," at a cost of $40,000. The Boston Museum of Fine Arts acquired by purchase the painting by George Bellows entitled "Emma and Her Children." The Metropolitan Museum of Art received as a gift from Mrs. E. H. Harriman a painting by Max Bohm entitled "The Evening Meal." The Museum also purchased a painting by John C.

Johansen entitled "Evening." The Telfair Academy of Arts and Sciences of Savannah, Georgia, purchased a painting by Robert H. Nisbet entitled "The Hurrying River." The Carnegie Institute, Pittsburgh, purchased a large painting by Zuloaga entitled "The Castilian Shepherd." The Cleveland Museum of Art purchased a portrait of Mlle. Jeanne Balzac by Eugene Speicher. The Cedar Rapids Art Association purchased a painting by Frederick C. Frieseke entitled "Before the Window" Not to mention all. One of the record gifts of the year was that of paintings by great masters to the Metropolitan Museum of Art, New York, by Archer Huntington. The Ranger Fund, which purchases regularly a certain number of paintings by American artists, acquired during the past year the following works: "The Prodigal Son," by Horatio Walker, N. A.; "The Wood Card," by Louis Paul Dessar, N. A.; "A Reading," by Thomas W. Dewing, N. A.; "Dawn," by Dwight Tryon, N. A.; "The Storm Birds," by Armand Hanson; "Helen," by Jerry Farnsworth; and "Across the Valley," by Hobart Nichols, N. A.

Exhibitions.—The number of exhibitions of paintings seems to have increased rather than diminished, which is perhaps reasonable, as the number of painters has increased. The American Art Annual lists approximately 1,000 more painters this year than last. This list was compiled from those who have exhibited during the past two years, and from lists of members of recognized art societies. Royal Cortissoz in the "Field of Art" department of *Scribner's Magazine*, called attention during the year to the increased popularity of the one-man exhibition. It is worth noting that sometimes as many as twenty such exhibitions open simultaneously in the dealers' galleries, New York. Many of these collections are sent on circuits throughout the country.

There is an increased popularity, also, to be noted in the traveling exhibition, the feasibility of which was definitely demonstrated by the American Federation of Arts some sixteen years ago. This organization alone has thirty or more exhibitions of paintings, as well as exhibitions of other works of art annually on the road. These go from Maine to California, from Minnesota to Texas. One of these exhibitions was shown in three or four of the Fairs in Canada during the season of 1924-25.

The record of the year in painting is therefore large, and the outlook for the future, it would seem, encouraging.

SCULPTURE

By Ralph Flint

Art Critic of the "Christian Science Monitor"

Stone Mountain. — Perhaps the most colorful incident of the year within the sculptural fraternity was the Stone Mountain controversy which resulted in the dramatic withdrawal of Gutzon Borglum from his herculean task of carving the huge Confederate Memorial in the granite flank of Stone Mountain near Atlanta, Georgia, and the subsequent appointment of Augustus Lukeman, born a Southerner, to carry on the work. It is not so often that a *cause celèbre* rises in the ranks of American artists, but when it does it curiously seems to center around some piece of sculpture. Just as London is enjoying its Epstein wrangle at the moment and causing a vast amount of publicity to be given the artist, so the Borglum incident turned the American searchlights on its sculptors to perhaps good advantage, since they are so often seen and not heard.

Saint-Gaudens' Diana. — Another picturesque incident of a sculptural nature which also brought forth a deal of public comment was the threatened destruction of the Saint-Gaudens' figure of "Diana," which had perched so many years atop the tower of the Madison Square Garden in New York

City. With the razing of this famous landmark, it seemed inevitable that the lovely, lithe lady of the tower should have to go the way of all metal, but fortunate provision was made and she is now in storage awaiting her future pinnacle on the reconstructed Garden tower that is to rise one of these days upon the heights where New York University is located. Then "Diana" will again be seen at a proper distance, since its construction, being of the bolted metal order, would not bear a closer inspection. This is a fine piece of reclamation and should cause the sculptural ranks to greatly rejoice.

Barnard Cloisters.—Another event of prime importance to the world of plastic thought is the transfer of the Barnard Cloisters of New York City with their wonderful treasures of Gothic Art to the safe keeping of the Metropolitan Museum of Art, to be maintained as a branch museum through the generosity of John D. Rockefeller, Jr. Thus the magnificent collection that this American sculptor has formed is to be preserved in the best possible manner for future generations.

Roosevelt Memorial.—Other events of a public nature include the placing of F. G. R. Roth's statue to Balto, the dog of Alaskan fame, in Central Park, New York City, and of the awarding of the competition for the Roosevelt Memorial in Washington to John Russell Pope, architect. Just what is to be done about the execution of this design is still problematical, since there are Governmental committees yet to be assured of its desirability as part of the present scheme for developing the city. Among the outstanding purchases of contemporary sculpture during the year must be recorded the transfer of Daniel Chester French's large marble group, "And the Sons of God saw the Daughters of Men that they were fair" from the Grand Central Galleries to the Corcoran Gallery of Art.

Exhibitions.—It is manifestly impossible to trace within this small space all the many exhibitions of sculpture that occurred throughout the United States during the past year; and since the most importa art is almost without excepti brought to New York for critic judgment, it is possible by going ov the events in the various New Yor galleries to gain a fairly comprehe sive idea of what has come to ligh during this period. One of the mo outstanding one-man shows of t year falls to the credit of Elie Nade man. This original and gifted scul tor provided New Yorkers with threefold treat, in which he unfolde his talents in classic, naturalisti and modernistic guise, and all withi his particular range of expressio In highly polished white marble had executed a group of amazing bold, large nude figures, most archa at times and yet wholly expressi of himself. Here was art of a highl stylized type curiously conforming t the modern demand for free and sen sitized creative thought. His po trait heads in wood, bronze, and ma ble were visions of haunting beaut particularly in the heads of childre where he combined design and repr sentation with consummate skill an insight. For pungent contrast h added a third group of the most mod ern sort, large sized caricatures o the present-day types to be found i the cabarets and dance halls, carve in wood with patches of paint applie here and there for facial tint or orna ment. These "boulevardier" puppet he has made to dance or sing, t promenade and pirouette with mos whimsical and amusing abandon, an while they are miles removed in senti ment from the portrait studies, the are of the same order of artisti achievement. On the whole this wa the banner exhibition of the yea among American sculptors, contain ing as it did the widest range o sculptural expression and the finest technical display.

Manship Marbles and Bronzes.—Paul Manship's exhibition, which pre ceded the Nadelman show at Scott and Fowles by a month, was also o prime importance, coming as it did after his three years' absence from the American galleries. Most of the work displayed was achieved during his recent European residence, and while it differed very little from the marbles and bronzes which he had exhibited before this time, yet he appeared to be forging ahead in his art. A maturing vision and a more delicate and sure touch were evidenced in the various pieces which he offered for public approval. A large classic group, as yet in colored plaster, was a dominant note of the exhibition, but it remained for a later viewing at the Grand Central Galleries to see this opus in a right setting. Mr. Manship had finally made a mate to his famous and long-admired bronze "Diana" in an "Actæon" and this was included among the figures shown. It is of a more involved and less inspired pattern than the "Diana" yet by itself is a work of much authority. Perhaps it was too much to expect that the seemingly unpremeditated rhythms of the "Diana" would yield a companion composition of the same quality. A large "Armillary Sphere" standing for "humanity and eternity" was one of the handsome imaginative designs, but it was in the portraits that Mr. Manship's fine talents predominated. His marble bust of the Marchioness of Cholmondeley is a radiant achievement, broadly characterized yet delicately felt in its detail. Portraits of John Barrymore, Miss M. Carey Thomas, and studies of several most engaging children were also exhibited at this time.

Fuchs' Exhibition. — One of the largest one-man shows ever held in New York occurred in May when Emil Fuchs took over the entire gallery floor of the Fine Arts Building for a considerable period and displayed an enormous aggregation of sculpture, paintings, etchings, etc. His sculpture occurred in many varied materials, and his subjects were of equal variety. Portraits of distinguished men and women, idealistic figures meticulously modelled in the nineteenth century manner, medals and bas-reliefs made up the plastic section of this retrospective exhibition, and proved the artist to be thoroughly at home in his extended craftsmanship.

Rosenthal Miniatures.—One of the most unique contributions to the season's roster came in the miniature sculpture of Louis Rosenthal (of Baltimore), in which the artist has evolved by a secret process of his own a method of hollow casting that would doubtless give the great Cellini a bad quarter of an hour. Mr. Rosenthal's figures are often but a half inch in height, yet in every minute detail they are perfectly moulded after the original wax model. Certain of his group pieces, such as his "Beethoven," have a score or more of figures introduced. This minuscule sculpture is not only of great rarity but of a very high artistic order.

Other Exhibitions.—Other exhibitors of note with individual exhibitions were Edward McCartan with a number of his smartly executed bronzes in the eighteenth century manner, Dorothy Rice with her ambitious groups and interpretations of New York City, Nancy Cox McCormack of Chicago with her handsome portrait busts among which the likeness of Mussolini was conspicuous, Philip S. Sears of Boston with a first public showing of his work, Nana Matthews Bryant also of Boston, Hunt Diederich, Harriet G. Bingham, Alfred Lenz, Harold Erskine, Eugenie F. Shonnard, J. B. Flannigan, Georg J. Lober, Oliver Naldarelli, and Carl Illuva. Jo Davidson exhibited a recent heroic bust of John D. Rockefeller to be placed in the rotunda of the new Standard Oil Building in New York City. Another item of interest to sculptors was the opening of the new court of sculpture at the Brooklyn Museum, a very handsome setting for its treasures in stone and bronze. The National Academy had two large exhibitions during the past year, the first being the annual Spring Academy at which most of the local men were represented, and the other the Centennial Exhibition which opened first in Washington at the Corcoran Gallery and later at the Grand Central Galleries in New York City. Here were examples of the art of all the great American masters, past and present. Herbert Adams, Augustus Saint-Gaudens, Charles Grafly, John Flanagan, Frederick W. MacMonnies, Lorado Taft, Edmond T. Quinn, and

Anna Hyatt-Huntington were well represented.

Architectural League Exhibit.—The Architectural League held its huge annual exhibition at the Grand Central Palace, and here many items of interest to the world of sculpture were brought forth. The annual foregathering of the Society of Independent Artists failed to evoke anything of particular consequence in the way of hidden sculptural treasure, but the similarly organized Autumn Salon of America, among its array of artistic odd-jobbers and loose-enders, unearthed some interesting sculpture treated in color by T. Trajan. The New Society, as always, presented interesting material, and among the sculptor members exhibiting were Gertrude V. Whitney, James E. Fraser, Chester Beach, and Stirling Calder. The Grand Central Galleries with its large list of sculptor members held a continuous salon of bronzes and marbles throughout the year, and carried great numbers of interesting pieces to such outlying parts as Aurora, Ill., Norfolk, Va., Nashville and Memphis, Tenn., Stockbridge, Mass., and Newport, R. I. The National Association of Women Painters and Sculptors had its annual exhibition in New York, and among the exhibiting members were Malvina Hoffman (a prize winner with her "Paderewski"), Lucy P. Ripley, Renée Prahar, Alice M. Wright, Harriet W. Frishmuth, and Brenda Putnam.

Art Students' League.—The Art Students' League held its Golden Jubilee Exhibition with many fine sculptural items displayed, and the annual Allied Artists of America likewise convened at the Fine Arts Building in New York. The American Numismatic Society held its second annual exhibition in its galleries adjoining the Hispanic Society's building on Upper Broadway; among the hundreds of medals and plaques from all over the world the Italian group came through a clear winner. For the second time a contest was organized for sculptors by a large soap-making concern, and hundreds of carvings in this unusual but sanitary medium were forthcoming, many of decided originality and done in many cases by very young children. While sculpture usually seems to take a second place in the large exhibitions to painting and the graphic arts, yet casting over this past year's output brings out the fact that the sculptors of the moment are well to the fore, and contributing their proper quota to the art of the year 1925.

ARCHITECTURE

By Charles Harris Whittaker

Editor, "Journal of American Institute of Architects"

General.—Two or three decades ago Europe was the architectural Mecca of the American people. This is not to deny the work of the small school of American architects that had already begun to make its mark, but rather to emphasize it, if that be possible. But, in considering the subject of education, for example, it is only necessary to remember that the École des Beaux Arts at Paris was the center around which Americans generally revolved, if they were interested in acquiring a knowledge of architectural design. To-day all is changed. American schools of architecture have outstripped the École des Beaux Arts, albeit no educator in America would withhold from the École its just due, for its influence has been paramount and its theories of teaching have had their ineffacable effect.

It is of course impossible to arrive at anything resembling a unanimous verdict in these matters—that is to say, whether the American-trained student has outdistanced his European-trained confrère, or vice versa. It all depends upon the point of view, for one training begets its prejudices quite as much as does the other. At any rate, it is worth noting that Europeans are now sending their architectural students to this country in increasing numbers.

Scholarships for architectural study in America have been founded and more are rumored. Draughtsmen are coming to America in search of that experience which they hope will help them to turn their own countries into successful competitors with the United States.

For the last decade the tide of foreign interest in American architecture has been rising with an almost incredible swiftness. Whether or no it has attained to flood has not yet been disclosed. But there hardly seems room for doubting that the foreigner is first of all caught by the amazing scale of American building. The skyscraper was of course the first note in this seven-league stride of the building industry, but in other directions the scale is likewise visible. Exhibitions of the work of American architects have followed each other in succession to different countries in Europe. In 1926, Berlin and Vienna will see a vast collection of photographs and drawings, and in far-away New Zealand, at Dunedin, the same year will witness another huge assemblage of illustrations of the work of American building designers. No architect will deny, I believe, that it was the element of scale which first began to set the tide of foreign interest mounting high, although this does not mean that American design is without interest, or that American technic is not a factor of the very greatest importance. For with scale there has also come speed. So vast are the sums required to finance the structures that now call for twenty millions where one million used to suffice, that a day's interest charges on the loans advanced is more than the payroll of an old-time contractor. The yearly interest charge would once have been deemed a fabulous price to pay for any building.

Scale.—Thus when one essays a view of modern American architecture it is impossible to avoid dealing with scale as a prime factor. During the last three decades, and since the complete victory of the steel skeleton type of building, we have witnessed such a competitive race in building heights as almost passes comprehension. Various causes are assigned. The island of Manhattan on which the biggest building orgy of all time has occurred is long and narrow. Thus it is said that buildings had to go up. But this is sheer nonsense, as any casual study of the built-up areas of New York City will reveal. Nor does the parallel hold good when examined in any other city. The tendency of people to herd and congregate is sometimes set forth as the ineluctable factor which has turned our urban simplicity of horse-car and hansom cab into a vortex of converging streams of humanity. But people do not willingly submit to the desperate living conditions now imposed in the large cities merely for the sake of being near each other. The reason for our unplanned and unparalleled urban growth must bear some relation to our land system and to our credit economy. It is to these two factors that we shall finally turn as we essay to find a way out of the bedevilled chaos that city growth is constructing.

To dissociate these phenomena from architecture would be like trying to estimate when to enter a shallow-channeled harbor without taking thought of the tides. Architecture is not the fiction it is supposed to be. Architects do not create it, in the sense that they are free men with white paper before them. Environment, time, place, circumstance, credit, land, materials, workmen, habits, customs—these are the things that definitely mould the architecture of any land and time. The architect may fall back upon inherited tradition or he may seek to evolve new forms befitting the new habits, the new customs, the new financial views of things or the new pecuniary canons of taste. But to these he must bow, so far as any ensemble is concerned, and whatever value may be placed upon the work of the architect in the United States during the last fifty years, as to his esthetic capabilities or his structural technic, there will very likely be charged against architecture the failure to coördinate and harmonize our chaotic urban growth.

Individualization in Building.—The charge will be unfair. The architect has been helpless except in the smallest of ways. Our urban growth has been as unplanned as well may be. On street systems designed for horse traffic; on lots designed for a maximum of six stories; on an urban territory that scarcely could take a breath between its transformation from farm to crowded street, we have allowed individualism almost unlimited play. The right of the property owner to develop his land as he pleased has slowly been abridged, it is true. One by one we have imposed restrictions. One by one the courts have sustained the legality of police power interference. Little by little the nature of the modern city has come to be understood, the danger of its unregulated growth perceived, the menace of congestion realized. The height of buildings has been variously dealt with, in various cities, and out of the effort to put a stop to the breathless flight of steel and stone, as land values rose and rose and rose, there has come zoning, a term applied first by the Germans, who conceived the idea of trying to cope with unchecked city growth by fixing a status of land use and building occupancy, in districts or zones.

Zoning.—It is yet too early to attempt any evaluation of the effect of zoning. So far there seems no reason to believe that it has produced any great effect. As a factor in stabilizing land values, it has its uses. But that is not what is needed if we are to temper the cityward scramble with some undertow. To district or zone a city or town by merely accepting present conditions and fixing them permanently is to fortify the present owners and handicap those of the future. If zoning be thought to prove a remedy for congestion, we may not derive much encouragement from the experience of New York, although the character of the congestion is no doubt changing. Is it for the better? Let us see.

Skyscrapers.—The American skyscraper is as much a Chicago invention, or more, as it is a New York idea. But New York has enjoyed the doubtful popularity of building the most and the highest. A decade ago, when the race seemed to be imperilling the life of the city beyond a point which could be sensed by a great majority of people, the arbitrary limitation of heights was imposed. (Already the limit on Fifth Avenue has been withdrawn.) Under the law it became necessary to set back the outer walls of the building as it rose in height; these set-backs varied with the width of the street, bordering open spaces, corners, parks, and so on. The architectural effect has been pronounced and bids fair to add a picturesque quality to such buildings as can be seen, either from near-by, which is now almost impossible, or from afar, which still remains one of the sights of all time as the newcomer to our shores sails up the harbor of New York.

But the picturesqueness accomplished by set-backs, which in turn produce towers or tower-like effects, has had another effect as well. It can readily be understood that on a small ground area the set-backs required after say twelve stories work a serious injury to the owner. His floor space for rental begins rapidly to diminish in area and as the elevators must be carried to the topmost story, no matter how small its area may be, the limit is quickly reached. With a high land cost the owner is forced to consider some way of joining his property with some other. Only so is it possible to build a structure that will pay an adequate return on its cost plus the cost of the land. Only so is it possible to carry buildings to the required height. Ground areas must grow larger. And with the added height comes added congestion and added land values, and thus a fresh cycle of rising heights and larger ground areas ensues. The city block is of course the present ultimate limit, but long before the city is covered with structures, of which only the streets are the surface limits, there will be, let us hope, a willingness to recognize the absurdity into which the city dweller is being pushed.

Process of Building.—Just as urban architecture is the chief consideration in a view of any given period in the present, just so is it useless to take no account of the real factors that are producing it. A twenty million dollar fifty-six story apartment house such as has been projected for the site of one of the old Vanderbilt mansions on Fifth Avenue is not the simple dream of an architect. Rather is it the result of forces far beyond the control of any set of men, as things are. The value of land sets the pace. Behind, with all the speed that may be summoned, follow the architect, the builder, the manufacturer, the inventor, the workman, the manager, and, last of all, the army of people that are bidden to dwell within. Basically a problem of finance, the process is almost like magic in its swift-rising steel framework, its astonishingly deft workmen balanced on beams or hanging suspended at dizzy heights, its walls taking flight not from the ground but from some story in the air. If we stand amazed at the ancient Egyptian process of raising the pyramids by inclined planes and levers, what is to be said of the bewildering maze of wire and pipe that is woven into the fabric of a modern urban structure? Of the miles of drawings, the reams of specifications, the masterful coördination of time and trade? Every minute counts, every hour is tuned to a calculated program, every day has its quota, every month its breathless summing-up, and at the end, in a space of time that is unbelievably short, the building emerges to take not its predestined place in a great architectural ensemble based upon convenience and safety and light and air, but upon the stage of congestion, that amazing vested interest which now enslaves us with its uncountable tentacles.

Yet this is not to deny to American architecture its increasing æsthetic interest. The foreigner, if he have any knowledge of America (and most of them have), will not need to be told the tale of Richardson, McKim, and Goodhue. He has been watching the evolution from afar, and he knows that the Renaissance is the period from which we are drawing most at the moment. If he did but remember, he might look at our modern system of architecture as essentially Byzantine, in that we cover our structure with a thin wall which permits a very great variation in color and pattern. This possibility we have not yet learned fully to make the most of, but we are gaining fast in our knowledge and in our daring. Color is fraught with a great fear to Americans, it seems, since we hardly dare to do more than give a dash of it here and there, but color is gaining ground, perhaps because of the fashion of illuminating buildings by night, and it seems not impossible that we shall some day emerge from our drab garments and put upon ourselves a raiment of brilliant and well chosen hues.

Examples.—The building of the American Radiator Company on Bryant Park, New York City, has attracted much attention by reason of the color experiments that have been made in its top stories. The note of black and gold is perhaps a bit fantastic for a building, a little too much like an over-dressed person on the street, but it has been the subject of much comment and criticism among those not primarily interested in architecture, and that at least is a healthy sign. The danger, of course, in any effort to be conspicuous, is the danger of being vulgar, and it must be remembered that the drama played by a building is rather permanent. It cannot be taken down and changed every little while. There it must remain, and therefore the achitect must be on his guard lest the temptation to dramatize, even for advertising purposes, lead him into a frivolity or a stupidity that will end by boring people to death. This danger is perilous when the scale of our modern buildings is considered, for although man has long since ceased to have any scale relation with his city street, or his canyon of façades, he is not unlikely to become resentfully aware of any effort baldly to "sell" him some commodity by the use of architectural trickery.

By the same token, one is at least not unfair in raising the question of the ultimate success of the new building for the *Tribune* in Chicago. The competition of 1923 attracted worldwide interest and although the weight of opinion seemed to credit Mr. Eliel

Saarinen with the best design, the award went to Messrs. Howells and Hood of New York. Completed in 1925, the structure takes its place among the skycrapers of Chicago, and raises its buttressed upper stories above the river on Michigan Avenue. But the question of its ultimate place is raised because of those very buttressed upper stories. The merest novice will surmise that the buttresses are unnecessary—that the tower would stand quite alone in its steel webbed strength—and hence he will ask (or will he?) whether it would not have been better to omit a form born of the masonry-walled Gothic and to have been honest in the structural exterior. But this is, at the present, an academic question only. Romance still holds some sway over us, and it is perhaps quite as reasonable to conclude that the sweep of the buttresses, reminiscent of some cathedral of the Old World, will long delight and soothe the Chicagoan. Time has its way of dealing with these things, and one can never do more than risk a prophecy, in the matter of a new building. Sometimes the risk is trifling. Few would hesitate to predict a certain and long-continued esteem for the Shelton Arms in New York City, of which Mr. Harmon is the architect. Beautifully studied in the mass, clean in its line, charmingly reticent in its ornament, there are not many modern urban structures that have outranked it in interest and favor.

Nebraska Capitol.—The year 1925 will scarcely witness the completion of the Nebraska State Capitol at Lincoln, for the great tower has yet to rise. But the main building will be finished early in 1926, it is expected, and already prophecy takes wings to itself and whispers in all our ears that the Nebraska State Capitol designed by the late Bertram Grosvenor Goodhue will stand as the first great American structure—that is, the first monumental building which will have no direct traditional relationship with the styles of past periods. Those who hold that architecture is a dynamic and not a static art seem to have an irresistible argument. If art—architecture—contained no vested interests and performance were judged on a pure basi of æsthetics quite divorced from al pecuniary factors and professiona frictions, then it would seem littl to risk in prophecying that Bertram Grosvenor Goodhue has bequeathe us a work of pure genius. For i was no mere accident that led him to design a towered rather than a domed capitol for a great agricultura state—a state without any æstheti tradition—a state of plains and long flat sweeps that ended only at th horizon. Calmly, surely, he tossed aside all the Gothic accumulation through which he had won his way to the topmost pinnacle of American architecture, and brought all his gifts to bear on the problem of mass and proportion, of a monumental styl free from petty ornament and fussy detail, of a great building poised perfectly in its own strength, free-standing, the symbol of a great state, o government, of organized law. Fortunately, his work was finished, al save the watchful carrying out of his plans, when he died suddenly in 1924 But the Nebraska State Capitol and the Los Angeles Public Library (under construction) are our recompense for the loss of the fruition of those dreams that were already shaping in Goodhue's mind as he looked forward to buildings ever more and more exquisite in the sheer loveliness of their simplicity.

Architects.—The year 1924 will long be remembered in American architectural annals, for within the space of a few months, there died Henry Bacon, Louis H. Sullivan, and Bertram Grosvenor Goodhue. All were men of renown and yet each had won his way over widely diverging routes. Bacon was a pure classicist, and his life work may be said to have culminated with the Lincoln Memorial at Washington. Louis Sullivan was the antithesis of classicism, a believer in the essential movement of architecture; that it is dynamic and not static, and that "every problem contains within itself the seeds of its own solution." His own autobiography is one of the great contributions to architectural thought and theory, and it will long remain as one of the clearest records of the child's mind that any man or woman has set down.

Bertram Grosvenor Goodhue was a pure genius. With so little schooling that it is not worth mention, he fairly burst into architecture with all the force of undauntable power. From the smallest of beginnings as an office boy in New York City, he quickly rose to partnership with Ralph Adams Cram, and then to the topmost heights. One risks little in prophesying for Bertram Goodhue the ultimate crown that American architecture has it in its power to bestow. From the exquisite mastery of Gothic he expanded to the simpler form, the studied mass, the undetailed façade, the unornamented structure. He began to see architecture as a sculptural whole, and little by little to infuse his designs with a quality that commanded the breathless admiration of his fellow practitioners. Dying at the age of fifty-four he left American architecture at the moment when his greatest dreams were but beginning to unfold.

Housing Problem.—It remains to consider one other element in American architecture. Since the war there has been much discourse of "housing." During the last few years there has been a coincidental real estate speculation the like of which the United States has perhaps never known. With this speculation there has also developed a medley of planning agencies, designed to furnish plans for small houses to the man of small means. But in 1923 and again in 1924 the Housing Commission of the State of New York called attention to the fact that as a result of its survey it was obliged to publish the information that less than half the people residing in the wealthiest state in the Union were enjoying a sufficient income to own or rent a decent house! Thus it is true that architecture, despite its fine achievement in scale, in the grandiose, in the monumental, remains helpless before a phenomenon that has fallen upon the United States just as it has fallen upon the Old World. Our cityward scramble does not make for a healthy development either of human beings or of architecture, and to discuss architecture without taking note of these things would be as idle as to discuss the Greek temple without discussing the Greeks of that day.

It is true that we are in the industrial era. Velocity is the order of the day. Speed is the disease which we mistake for a saving grace. Building has become a race, a battle with financial factors, a scramble to house more people on less land, to provide schools for the endless tide of children that seem to multiply as the sands of the sea. It has become a highly specialized piece of business all round. It has its serious problems, not only of labor but of technic. And, as has already been said, it is these problems, these needs, these dominating factors that lie quite outside of either labor or technic and are found in the abode of finance, that determine the quality and the style of American architecture. For the ultimate style will thus be developed. It cannot be shaped by any individuals. It cannot be imposed. It cannot be fastened on as a bit of decoration. Ultimately it will emerge as the faithful picture of the time and the habits and the customs and the destiny of the American people. It cannot be otherwise, for of all human records, architecture is the most vital and the most truthful.

LANDSCAPE ARCHITECTURE

By Aubrey Tealdi

Professor at the University of Michigan

The current year has shown a very marked increase of activity in all fields of Landscape Architecture, the reports from most of the professional offices indicating sustained interest both in public undertakings and private work. It is natural that with the constantly increasing public appreciation of the value of city-planning landscape architects should find themselves more and more concerned with comprehensive schemes in which landscape art finds full scope. The importance of great public parks and parkways to landscape art can not be overestimated because with very few exceptions it is only in these public undertakings that the designer can expect to have his plans carried out and developed to maturity.

Small Estates.—This is due to a tendency which has become more and more marked the past few years in the development of private estates. The era of the extensive estate of hundreds of acres seems to be passing and in its place we see a far larger number of smaller country places in which the scale of landscape development is necessarily much reduced and the style altered.

Public Parks.—If this tendency towards smaller country places is sustained, and both economic and social conditions would seem to suggest it, it is evident that the great landscape effects typified by Prospect Park in Brooklyn and Delaware Park in Buffalo which represent the finest conceptions of the earlier period of the landscape school would in the future be possible only as public undertakings. For the landscape architect this is not an unsatisfactory situation. The factor of time in landscape development is such an important one that continuity in ownership and policy is essential over a long period of time if a design is ever to mature. In all parts of the conutry a park department is now such a definite part of city administration that continuity of policy in park development can at least be hoped for, but it is impossible to hope for it where a private work is concerned when the tenure of a country place rarely extends over more than one generation.

Suburbs.—The ever increasing number of country places of a few acres is greatly extending the suburbs of all the larger cities so that we find the country place no longer merely the summer residence but the only residence of men whose business is in the adjoining city. The earlier d velopment of country life which w due to the advent of the railwa has given way to a more intensi development of suburban life due the general use of motor cars. T popularity of this suburban life further emphasized by the remar able increase in the number of e tensive country clubs that are bei developed. The landscape archite finds in this field also an opportunit for the practice of his art on a larg scale but only time will tell whethe real permanency can be expected i it.

Status.—In surveying the countr at large we can safely say that lan scape architecture never before he such a high position as an art of d sign as it does today. While course some poor work is being do today as always, the percentage good work is constantly increasin It would be rash to say that this wa due to the general improvement public taste. There are two definit reasons for it. The first is the eve increasing influence of the America Society of Landscape Architects whic has steadily exercised this influenc by insisting on constantly highe standards. The second is the de velopment of professional instructio in landscape design in Universitie and Colleges. Much work that year ago would have been left to th nurseryman or contractor is toda being undertaken by the graduate o the professional schools. Throug these graduates the influence of th schools is being spread widely i many sections of the country.

The Garden Club of Lake Forest Illinois, held a two-weeks' Institut of Landscape Design in July unde the direction of Ferruccio Vitale F.A.S.L.A. of New York. Lectures b members of the A.S.L.A., round tabl discussions, and organized visits t estates and gardens formed the basi of instruction. The institute wa well attended and it established a fin precedent for garden club activitie in the country.

University Instruction.—With th purpose of raising the standards an the efficiency of this instruction th teaching staffs of the several institutions initiated some years ago a yearly Conference of Instructors in Landscape Architecture. The Conference, which had been held previously at Harvard, Cornell, and Michigan, was held this year at Illinois. The most valuable results of these meetings have been the development of a spirit of coöperation among the various schools and the active cooperation with them of the American Society of Landscape Architects through its Committee on Education.

A number of books on subjects of interest both to the professional and the amateur were published this year. Those interested will find them listed and the more valuable ones reviewed in the quarterly publication *Landscape Architecture,* the official organ of the American Society of Landscape Architects.

CLASSICAL ARCHÆOLOGY

By William Nickerson Bates
Professor at the University of Pennsylvania

Corinth.—The year 1925 has been an interesting one in the field of Classical Archæology. At Corinth, where the American School of Classical Studies at Athens has been excavating for about thirty years, Dr. T. Leslie Shear of Princeton resumed work in the ancient theatre. He found that in Roman times the two front rows of seats were removed and this space, together with the whole orchestra, dug down to a lower level. This made a circular arena with a wall six feet high surrounding it. The inner side of this wall was brilliantly painted with life size figures of gladiators engaged in combats with animals, showing that the arena was intended for gladiatorial combats. The mass of earth above it is so great that it was possible to uncover only a small portion of the wall, but work will be resumed upon it in 1926. It was also discovered that at a still later time the theatre was again rebuilt and the seats made to rise at an angle different from that of the Greek theatre. Some distance to the north of the theatre Dr. Shear partly excavated an important Roman villa. The floors of the rooms were covered with elaborate patterns in mosaic, some of which have been carefully copied in colors. Further work will be done on this site.

Athens.—The late Joseph Clarke Hoppin, who took part in the excavations of the American School at the Argive Heræum from 1892 to 1895 and published the Greek vases, planned a few years ago to dig deeper on that site, believing that still earlier remains would be uncovered. When it became clear that his illness would not permit him to do the work himself he provided funds for the purpose and after his death Dr. Blegen, the Secretary of the School, dug in accordance with his directions. Hoppin's predictions were fully confirmed. Masses of neolithic pottery like that previously found in Thessaly were unearthed and it became clear that the whole hill had been inhabited in neolithic times and down through the whole Bronze Age. One house of Early Helladic date (2500-2000 B. C.) and several Middle Helladic houses (2000-1600 B. C.) were found, all more or less injured, and ten Middle Helladic graves. An unsuccessful search was made for beehive tombs; but seventeen Mycenæan chamber tombs came to light dating from 1600 B. C. on. Repeated interments were made in these tombs. The first body would be carefully laid in the middle of the burial chamber, but when a later burial was made the bones of the first incumbent would be pushed aside and the new body placed in the middle. In one tomb there were five groups of bones dating from different periods as the vases found with them showed. This tomb was in continuous use for about 200 years. Five of these chamber tombs showed evidences of fire; in one case the layer of black ashes on the floor was from one to two inches deep. The most interesting small objects found in them were two bronze daggers inlaid with gold, similar to the daggers found in the Shaft Graves at Mycenæ but a little later. One has three doves (no two alike) in niello on each side; the other a dolphin on each side. Other small objects found were bronze spearheads, two gold necklaces, a carnelian pendant representing an elephant, seal stones, etc.

An important incident is the offer made to the School by the Greek Government in the spring of 1925 to grant it the privilege of excavating the site of the ancient market-place at Athens and the whole region to the north and east of the Acropolis. This is the most promising archæological site in Greece. The School has accepted the generous offer and will begin work as soon as the necessary funds are forthcoming. The government has already set a price on the buildings in the area and they will be condemned and removed as the work progresses.

Other Excavations.—The School has also had other excavations on hand. In 1924 the site of Phlius in northeastern Peloponnesus, where preliminary work was done by the School in 1892, was carefully explored. About eighty-five trial trenches were dug and the site of the theatre and other public buildings determined. An interesting feature was the discovery of a considerable amount of prehistoric pottery datin from the period of transition from n olithic times to the Bronze Age. Ne lithic sites in the Peloponnesus ar rare. The others known are at th Argive Heræum, two in Corinthia an one in eastern Arcadia. Some archai Greek inscriptions were also found.

Preliminary excavations were als made at Nemea, but they have no progressed far enough to make cer tain the identification of the wall uncovered.

No excavating has been done a Sardis since the Turks again obtaine control of the country; but in th summer of 1924 Professor D. M. Robinson and Sir William Ramsay du at Pisidian Antioch and brought t light architectural remains, sculptures and inscriptions, mostly of lat date.

Patrons.—Classical archæology ha suffered a grievous loss in the deat of four men who have attained distinction in that field. Professor Allan Marquand of Princeton was a eminent specialist in Mediæval and Renaissance Art; Dr. Joseph Clark Hoppin was the chief authority in the country on Greek vases; Richard B Seager for many years carried on excavations in Crete; and C. Densmore Curtis, long connected with the American Academy in Rome, was an authority on Etruscan and Roman antiquities.

ART SALES AND EXHIBITIONS

By G. A. Mock

Of the American Federation of Arts

General.—Those interested in the fine arts are apt to be interested as well in the prices they bring. Quotations from the open market are the only available check upon prevailing prices. In public auctions precedents in the matter of values are established almost daily; sometimes for the works of modern painters whose pictures have never before been publicly sold; sometimes for works of old masters, whose values may fluctuate until stabilized by the interest of an important sale. Records which cover a period of fifteen or twenty years when consulted will chart a practically steady rise with few deviations for the work of one master and some declines. Inexorably, one way or another, the records of works publicly sold mark the values in the fine arts field. For many years auction sales abroad have been carefully watched and accurately recorded. Now, when not only the works of art of our own private collectors but also the important works gathered by foreign collectors are, in so many instances, sent to New York to be sold, the fluctuations in values here are coming to be regarded with ever growing interest.

Ninety-two important sales, comprising entirely or in part objects of the fine arts were reported for the season 1924-1925. Sixty-two sales comprised in whole or in part paintings. Forty-six sales included sculptures and 5 included drawings, one being solely of drawings. Thirty-three sales were in whole or in part prints.

The auction season records the disposal of 4,108 objects of the fine arts for a total of $1,127,674. These figures include paintings and sculptures sold for $50 and over, prints and drawings sold for $25 and over. One thousand eight hundred and seventy-seven paintings sold for a total of $797,594. Six hundred and thirty-one pieces of sculpture brought $196,357; two hundred drawings brought $17,375; and 1,400 prints brought $116,338.

Paintings.—Among the outstanding sales taking place during the season 1924-1925 was that held December 10th in the American Art Galleries at which were sold paintings, sculpture with furniture, textiles, objects of art, being the private collection of lo Giacomo Nunes, Palazzo Orsini, Rome; it brought a total of $130,215.00. In Washington at Sloan's Art Galleries paintings and prints together with furniture and household embellishments from the estate of the Honorable Frank B. Brandegee were sold January 6th, 7th, 8th, and 9th. On January 14th, 15th, 16th, 17th, paintings and sculpture together with the objects of art from the private museum of the late Georges Spitz of Alsace, France, sold for $201,366.00, at the American Art Galleries. On January 23rd one hundred and two modern paintings of the French and American schools from the collections of the late Dr. George M. Minor, the late Joseph H. White and from other private sources sold at the American Art Galleries for $24,010.00. An important painting sale was that held in the Freeman Galleries, Philadelphia, January 28th and 29th, when one hundred and thirty-six paintings of the American and European schools were sold from the collections of the late Senator George T. Oliver, Pittsburgh, Pa.; John N. Bonham, York, Pa.; James Boyd, Harrisburg, Pa.; and from other sources. On February 4th and 5th paintings of the foreign and American schools including all the remaining works of the late Daniel Ridgway Knight and selections from the P. H. MacMahon, John Dugan and other private collections sold at the American Art Galleries for $14,717.50. On February 19th, 18th and 19th century paintings, the collection of the late Arthur Tooth, sold at the American Art Galleries for $57,840.00. On March 5th, at the Anderson Galleries, one hundred and fifteen paintings from the collections of the Hanover Club; Louis d'Aras, of New York; Mrs. C. S. Boker, of Seabright, N. J.; Mrs. Gertrude M. Smith, of Staten Island; and from the estates of Julia Chester Wells, of New York; H. Alloway, of Goshen, N. Y.; Helen Boyd Dull, of Harrisburg, Pa.; Wilmot L. Warren, of Springfield, Mass.; sold for $14,571.00. April 4th at the American Art Galleries, Gothic and Renaissance sculpture, primitive paintings, together with furniture, tapestries and Egyptian antiquities, the collection of Philip J. Mosenthal sold for $27,832.00. This sale was particularly noted for its interesting pieces of sculpture. April 30th and May 1st at the American Art Association, paintings and sculpture together with Gothic and Renaissance Italian and French furniture, textiles and objects of art, belonging to Pietro Cattadori of Milan, Italy, sold for $84,932.00.

Drawings and Prints.—An interesting sale of drawings was that containing several hundred by old masters from the collections of Richard Ederheimer of New York and the late Fairfax Murray of London, England, and which sold for $12,655.00 at the Anderson Galleries, November 6th and 7th.

Among the print sales of especial note was that of the collection of etchings by Buhot formed by Miss Myrtilla Daly Noe of Bayonne, N. J.; with mezzotints, etchings and engravings, including the collection of Mrs.

William B. Hayden of N. Y., which sold for $14,272.00 at the American Art Galleries, November 12th and 13th. The recent special interest in Currier and Ives lithographs is reflected in the number of sales recorded by the auction galleries. There were collections of them sold December 3rd and 4th, December 8th and 9th, January 6th, February 4th and 5th, February 12th and 13th, April 15th and 16th, May 1st.

Prices. — In reviewing interesting prices brought for single items it is to be noted that the highest price paid for a painting for the season 1924-1925 was $37,000.00 brought by the canvas "On the Dunes" (29 x 32) by the Dutch painter Anton Mauve. At the same sale, which took place in the Freeman Galleries, Philadelphia, "Nocturne—Return of the Laborers" (17 x 24½) by Jean Francois Millet sold for $25,000.00 and "Golden Autumn" by Pierre Etienne Theodore Rousseau brought $19,000.00. In January, which was several months prior to Sargent's death, a painting by him entitled "Barges at San Vigilio, Lake Garda, Italy" (22 x 18¼) sold for $3,600.00.

The highest price paid for a piece of sculpture was obtained by a work of the Italian School, 16th Century, entitled a "Pair of Çentaurs" (bronze, 12¾ x 14½) which sold for $4,100 at the Anderson Galleries. In the same sale a bust of Aristotle in bronze and marble (36 x 33), a work of the Venetian School, 16th Century, sold for $4,000.

"The Farmer's Stable" (mezzotint in colors, after Morland) by William Ward brought $1,000 which was the record price obtained for a print. It was sold at the Anderson Galleries in February. Among the Japanese prints the highest prices recorded were for a portrait by Sharaku purchased by the Walpole Galleries for $800 and a figure entitled "Standing Woman" by Kwaibetsudo bought by A. B. Duel for $675. "Sunset in Ireland," a drypoint by Sir Seymour Haden, brought $500, the largest figure paid for an etching. The highest mark for a Currier and Ives lithograph was $480 paid for "Home to Thanksgiving" (after Durrie).

At the Anderson Galleries the p and bistre drawing entitled "Ki Seated on a Throne" by Pietro del Francesca which sold for $1,500. marked the record for drawings f the season.

Exhibitions.—The general chara ter of the large formal and offici exhibitions held in this country du ing the season 1924-1925 was perha to be marked by the growing numb of international exhibitions and e hibitions which included works American and some foreign artist These joint exhibitions might be i terpreted as signifying a new assum tion of position by America in the a world.

One of the first large exhibitions start the season was the thirt seventh annual exhibition of Ame ican paintings and sculpture at th Chicago Art Institute. "Recessiona by Eugene F. Savage won the Fran G. Logan medal and $1,500; Malcol Parcell was awarded the Loga medal prized at $1,000 as well as th Norman Wait Harris bronze meda carrying $300 for his two portrait "Jim McKee" and "My Mother" Leon Kroll won the Potter Palme gold medal, with a prize of $1,00 for his painting of "Young Women" Charles Grafly won the Keith Spauld ing prize of $1,000 for his piece o sculpture "Study of Head of War" Jean McLane with her "Morning was awarded the Harris silver meda valued at $500.

The 100th anniversary of th Brooklyn Museum was observed i November with an interesting specia exhibition of paintings, sculpture, an prints lent by private citizens o Brooklyn, New York.

In the winter exhibition of the National Academy of Design the Car negie money prize was awarded t C. W. Hawthorne for his painting the "Captain's Wife." "Miss Ingram" by Childe Hassam was awarded the Altman prize of $1,000.

In January the New York Water Color Club and the American Water Color Society combined to hold a big exhibition in the galleries of the Fine Arts Building.

An art exhibit held under the auspices of the English Speaking Union of England and America was formally opened by Sir Esmé Howard, the British Ambassador, on January 10th in the Grand Central Galleries. The paintings shown were by English masters from Hogarth down to the present day.

In January in the Fine Arts Building, the Art Students League held a Golden Jubilee Exhibition to celebrate the fiftieth anniversary of its foundation. Many representative works by famous painters once students in the League were shown, together with examples by the student body of to-day. Also in January an international exhibition of mural painters was held in the Brooklyn Museum.

The 120th annual exhibition of paintings and sculpture opened February 7th at the Pennsylvania Academy of Fine Arts. The Beck gold medal was awarded to William James for the portrait of a woman; the Widener gold medal to Walter Hancock for "Toivo," the bust of a boy; the Sesnan gold medal to Frederick Bosley for an interior with figures "Elizabeth and Emily"; the Temple gold medal went to Clifford Addams for his painting "Washington Square, New York."

An exhibition of the paintings entered for the calendar competition held by Brown and Bigelow, in an effort to procure a better type picture for reproduction, was held in the Anderson Galleries in February. Louise Lyons Heustis won the prize of $2,500; $1,500 for the best story-telling picture went to E. W. Redfield for "Country Life in Winter"; Emil Fuchs won $1,000 for his "Modern Juno"; and Virginia Keep Clark was awarded a similar amount for the best mother and child subject. Gold medals were awarded Edward Dufner's "Two Intruders"; "The Circus" by Harold T. Denison; "The Black Hat" by I. H. Caliga; and "The Young Mother" by Edward F. Smith; silver medals went to the "Gateway in the Woods" by Charles S. Chapman; "Three Musketeers" by F. Luis Mora; "Mediation" by Juliette Thompson; and "Scarlet and Blue" by Hilda Belcher.

From February 22nd to April 6th an exhibition of the paintings of John Singer Sargent was held in the Grand Central Galleries. Some 70 canvasses were shown, making it one of the largest exhibitions of his work ever held in this country and making it a fine tribute to the painter in his own lifetime. Sargent's death occurred April 15, 1925.

The ninth annual exhibition of the Society of Independent Artists opened March 6th at the Hotel Waldorf-Astoria, with 760 artists represented by 1,180 exhibits, which made it the largest since its initial exhibition.

The "Hoosier Salon" sponsored by the Daughters of Indiana opened at the galleries of Marshall Field and Company in March. Over $4,000 in prizes were awarded. 208 artists were represented.

The National Academy of Design showed 422 works in its 100th annual exhibition which opened April 1st. The Saltus medal was awarded to John E. Costigan for his "Landscape with Figures"; the first Hallgarten prize went to Clarence R. Johnsons' "Lumberville Lock"; the second Hallgarten prize to Stanley Woodward for "Mid-Ocean"; Hobart Nicholl's "Across the Valley" won the first Altman prize; the second Altman prize going to E. L. Blumenschein for "Sangre de Cristo Mountains"; Gertrude Fisk's "Sunday Afternoon" won the Thomas B. Clarke prize; the Maynard portrait prize went to William Auerbach-Levy for his "Father and Daughter"; Jerry Farnsworth's "Helen" was the winner of the third Hallgarten prize.

The fortieth annual exhibition of the Architectural League was held this year in the Grand Central Palace. The League collaborated with the Institute of Architects in staging the exposition of architecture and the allied arts. Over eleven foreign countries sent the works of their foremost architects. Medals and prizes were awarded in the various departments of the exhibition.

A large memorial exhibition of the work of George Bellows, who died last January, was held in the Metropolitan Museum of Art from October 12th to November 22nd. It comprised paintings, lithographs and drawings and included examples from all periods of his career.

The twenty-fourth international exhibition to be held in the Carnegie Institute, Pittsburgh, opened October 15th and contained 488 paintings, making it the largest show but one ever given there. Henri Eugène Le Sidaner took the first prize of $1,500 for "Window on the Bay of Villefranche"; Ubaldo Oppi, of Milan, won the second $1,000 prize with a painting of a nude; Charles W. Hawthorne was awarded a prize for his "The Captain, the Cook, and the First Mate"; Louis Legrand got the first honorable mention and $300 for "In the Café"; honorable mentions were also given Henry Bishop, Rosalie Emslie, and Leon Kroll; Emily Court, English, won the prize of $500 given by the Allegheny County Club which was awarded for the first time.

The National Academy of Design celebrated the one-hundredth anniversary of its founding with a centennial exhibition at the Corcoran Gallery of Art, Washington, which was opened by President Coolidge on the evening of October 17th. An effort was made to represent the various phases of American art during the past hundred years, both in the exhibits of sculpture and paintings.

STATISTICS OF ART

By Frances R. Howard

Editor of the "American Art Manual"

Gifts, bequests and foundations amounting to almost $17,000,000 were made to art organizations throughout the United States in 1925. The largest of these were: the preliminary gift of $3,000,000 from Mr. and Mrs. Simon Guggenheim, to endow fifty fellowships for international study in the arts and professions; two notable gifts were made by Mr. John D. Rockefeller, Jr., to the Metropolitan Museum of Art, New York—one of Standard Oil Stock valued at approximately $1,000,000, and the other of "The Cloisters," in New York City, the collection of Gothic art assembled by George Gray Barnard, consisting of between 600 and 700 items of sculpture, painting and other work, and a fund for sustaining it. The Carnegie Corporation voted $360,000 to be distributed among twenty educational institutions or organizations which give instruction in the arts. The Corcoran Gallery of Art, at Washington, D. C., accepted the valuable collection of miscellaneous art works bequeathed by ex-Senator William A. Clark. The Boston Museum of Fine Arts received in all nearly $1,000,000, the largest single legacy being $250,000 in real estate from Alexander Moseley to form a permanent fund. Ten new galleries, an auditorium, a Gothic gallery and five class rooms were added to the Toledo Museum through the gift of $1,000,000 from Edward D. Libbey, late president of the Museum. The Museum also receives through the will of Mr. Libbey total bequests of $4,850,000. Davenport, Iowa, received from C. A. Ficke a gift of 330 paintings, valued at $500,000, as the nucleus of a public collection. The Memorial Art Gallery, of Rochester, N. Y., received $300,000 from Mr. and Mrs. James Sibley Watson for an extension. Mrs. Thomas Emery was the donor of $300,000 to the Cincinnati Museum for a new wing. The Art Institute of Chicago, Ill., received $100,000 to establish the James Nelson and Anna Louise Raymond Room. Two portraits, by John Hoppner, valued at $200,000, were given to the Pasadena, California, Art Institute by Joseph Tilt. The John Herron Art Institute, of Indianapolis, Indiana, received through the bequest of Mrs. Anna Delzell Hughes a piece of property valued at $250,000, the income of which will be used for the purchase of paintings, and the aid of women students in the Art School.

New museums opened included the Pasadena, California, Art Institute; the Wightman Memorial Art Gallery at Notre Dame, Indiana; the Yonkers, New York, Museum of Science and Arts; the Museum of Fine Arts at Houston, Texas; "Hamilton Grange," former home of Alexander Hamilton in New York City; the Grace Campbell Art Museum at Spokane, Washington; the Wagnalls Memorial at Lithopolis, Ohio, and the Fine Arts Gallery of San Diego, California.

Buildings of special architectural merit completed were: the Newark, N. J., Museum, Jarvis Hunt, architect; the Cleveland, Ohio, Public Library, Walker and Weeks, architects; the Kenneth Sawyer Goodman Memorial Theater in Chicago, Ill., Howard Shaw, architect; the Scottish Rite Temple, William B. Ittner, architect, the Masonic Temple, Eames and Young, architects, and the Federal Reserve Bank Building, Mauran, Russell and Crowell, architects, all in St. Louis, Mo.; the Fine Arts Gallery of San Diego, Calif., Templeton Johnson, architect; a replica of the Parthenon, at Athens, in Nashville, Tenn., Russell E. Hart, architect, sculpture on the building by Belle Kinney, Leopold Scholz and George Julian Zolnay; the Textile Building, Jardine Hill and Murdock, architects, the building of the American News Company, Russell G. Cory, architect, and the Barclay-Vesey Building, McKenzie, Voorhees and Gmelin, architects, all in New York City; the American Legion Headquarters Building at Indianapolis, Ind., of which Walker and Weeks were the architects.

War Memorials erected included a statue by Daniel Chester French, at Milton, Mass., illustrating the celebrated poem "In Flanders Fields;" Coolidge and Shattuck were the architects. Laramie, Wyoming, has a war memorial consisting of a cross surmounting a limestone shaft twenty-five feet high, at the base of which are grouped four figures in bronze. It was designed by Louis Milione, sculptor, and Thomas, Martin and Kilpatrick were the architects. At Providence, R. I., a bronze statue by Mrs. Theo. A. R. Kitson, to the "Heroes of '98," was unveiled. Also a memorial to veterans of the Spanish-American War, by A. G. Newman, was unveiled in Schenley Park, Pittsburgh, Pa. The Grant Park Stadium, "Soldiers' Field," was dedicated in Chicago, Ill. A War Memorial, by Maude Sherwood Jewett, was erected at East Hampton, Long Island, N. Y.; it consists of a granite stele in Gothic style, with a laurel wreath carved above. In Boston, Mass., a memorial tablet and doorway were dedicated to three members of King's Chapel who lost their lives in the Great War, the architect was Robert P. Bellows. A War Memorial was unveiled at the Fifth Regiment Armory, Baltimore, Md., consisting of bronze doors, lunette and accompanying tablets, designed by Hans Schuler.

Other notable works of sculpture unveiled during the season were: five busts of well-known Americans in the Hall of Fame of New York University—"Charlotte Cushman" by Frances Grimes; "John Marshall" by Herbert Adams; "Harriet Beecher Stowe" by Brenda Putnam; a replica of the Saint-Gaudens bust of "William Tecumseh Sherman"; and "Asa Gray" by Chester Beach. In the rotunda of the Gould Memorial Library of New York University, in the Hall of Remembrance of American Artists, the following busts have been placed: "Augustus Saint-Gaudens" by John Flanagan; "George Inness" by Hartley; "J. Q. A. Ward" by himself; "Frank Duveneck" by Grafly; "Henry K. Brown" by Bush-Brown; "Carroll Beckwith" by Brewster; and "Walter Shirlaw" by Bartlett. Paul Bartlett was also the sculptor of a bronze statue of Robert Morris, unveiled in Philadelphia, Pa. The "Pioneer Family," a fountain by Myra R. Richards, was unveiled in Indianapolis, Ind., as was also a fountain in memory of Mrs. Suemma Coleman Atkins. "The Man at the Wheel," a bronze figure by Leonard Craske, was unveiled at Gloucester, Mass., and is a memorial to fishermen lost at sea from 1623 to 1923. Attilio Piccirilli is the sculptor of the monument to Christopher Columbus, unveiled in the Borough of the Bronx, New York. In St. Louis, Mo., a large memorial fountain was unveiled, which is in commemoration of the services of two prominent musicians of the city, Owen Miller and Otto Ostendorf; it is the work of Victor Holm, sculptor, and Gabriel Ferrand, architect. An equestrian statue of General Sam Houston, by Enrico Cerracchio, was unveiled in Houston, Texas. In Washington, D. C., a panel, "Launcelot and Sir Ector," by John Gregory, was permanently placed in the Corcoran Gallery of Art. It is a memorial to the late Major William Corcoran Eustis. In Washington, also, a statue of General José de San Martin, the Liberator of Argentina, Chile and Peru, was unveiled. It is the replica of the statue in Buenos Aires by the French sculptor, Joseph Daumas. A bronze fountain group, "The Wine Press," by Donald Tilton, was recently unveiled in Golden Gate Park, San Francisco, California.

Museums Endowed.—In November, 1924, the people of Baltimore, Md., authorized by a large vote the municipal loan of $1,000,000 for the erection of a museum of art to be owned by the city. San Antonio, Texas, in the spring of 1925 appropriated $25,000 as the first installment of a future $100,000 museum, work to be started as soon as possible. "Kenmore," in Fredericksburg, Va., the home which Colonel Fielding Lewis built for his bride, Betty, the sister of George Washington, was dedicated as a national shrine by the Daughters of the American Revolution, on May 9, when practically all of the citizens of the town were in Colonial costume, and there was a parade of ancient vehicles. Songs were rendered by negro singers in Market Square, where tea was served by members of the Washington-Lewis Chapter of the D. A. R.

A Pan-American Conference on Capital Cities was held in Washington, D. C., in April, under the auspices of the Washington Committee on the Federal City, of the American Civic Association, and in coöperation with the Pan-American Union. The week before an International Conference on City Planning was held in New York City. In Philadelphia, Pa., in November, 1925, the sum of $1,000,000 was voted by the people to take over about two miles of the west bank of Tacony Creek for park purposes. In Washington, D. C., the National Capitol Parks Commission appropriated $600,000 for the purchase of park property in the District of Columbia.

The "Who's Who in Art" of Volume XXII of the *American Art Annual* contains the names of 7,383 sculptors, painters, illustrators, etchers, etc. This is an increase of 697 since the last directory of artists was published two years ago.

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DIVISION XXXVIII
MUSIC AND DRAMA

MUSIC

By Frederick H. Martens

Contributing Editor, "The Art of Music"

General Survey.—What seems to be a definite post-war stabilization and prosperity during the year past has been reflected in music. Material gains include building of new auditoriums, concert halls and opera houses in various cities (New York, Albany, St. Louis, Salina and Kansas City, Omaha, San José), notably Mrs. F. S. Coolidge's new chamber-music auditorium at Washington, D. C., to which the Berkshire Festivals have been transferred. Increased prosperity has been felt in our music publishing business and the export trade in musical instruments. Greater general interest in music is shown in the foundation of many new choral societies, civic orchestras, municipal and other opera enterprises; and an increase in the number of music festivals and "music weeks" celebrated throughout the United States. Among bequests and foundations are: The John Simon Guggenheim Memorial Foundation; Bearns' Trust Fund (Columbia University); Caruso Foundation; Stony Point Opera Foundation; Juillard Foundation (fifty-one scholarship awards in 1925); the Pulitzer awards; numerous festival prizes and new scholarships; all endowments for pecuniary aid given American musical ideals and American musicians individually.

In moving picture music the original musical scores written by Deems Taylor to accompany "Janice Meredith," and by Mortimer Wilson for "Don Q" are outstanding individual contributions; while Erno Rapee's *Encyclopædia of Music for Pictures,* a catalogue of music essential for cinematic situations, deserves mention. Numerous new pageants were presented in the United States during 1925; and though *al fresco* music inevitably suffers in acoustic effect, the music in such pageants as the "Lexington Pageant" (Charles Repper) linking the battle with the present in historic tableaux; and "La Favorita de los Gatos" (Arthur Farwell), a pageant idealization of the *rancheria* life of Spanish California, may be instanced as typical of the quality of the American pageant score. In connection with pageants Roland Holt's *List of Music for Plays and Pageants,* tentative rather than comprehensive, is a useful publication.

In the field of mechanical musical reproduction the outstanding achievement of the past year is the Panatrope, recording and reproducing sound received from a telephone transmitter generating electric currents. Music is thus produced with a perfection of individual tone quality and shading exceeding that of radio transmission and other existing processes.

A direct stimulus to American composition in general during 1925 has been the activity of the National Federation of Music Clubs which at its biennial convention (Portland, Ore.) gave first performance to symphonies and operas by American composers.

Radio and Music.— Improvements in radio broadcasting during the year past have confirmed radio's position as one of the most powerful agencies for popularizing music in the United

States. Other contacts are immediate and personal, usually presenting the good, bad and indifferent with cheerful unconcern; but radio's advantages greatly outweigh its defects. Standard and new orchestral, choral and other music transferred directly to the average home by radio is a cultural and educational influence making radio's rôle of carrier of hotel and roof-garden jazz negligible. The "instantaneous" character of radio transmission is supported by the universal nature of an appeal which acquaints the radio owner with the news of the moment, and lets him participate in lectures, sermons, political and other conventions, *et al,* without leaving the room.

Radio and the American Composer.—In connection with the American composer, the most important radio development of 1925 has been the drafting of a new copyright bill to protect the composer's creative property. Phonograph and other mechanical reproduction companies at an earlier date had influenced the passing of laws compelling copyright owners to accept—in contravention to the general law of royalty equity—a negligibly small compulsory fee on each disk, roll, etc., manufactured by the exploiter, a fee far below a reasonable proportion to the latter's profits. The present effort to protect the American composer is due to the attempts of certain members of the tremendously wealthy group of radio corporations to ignore the common equity rights of the musical creator by evading payment of fee or license for their gainful exploitation of the products of the composers' brains.

The American Society of Composers, Authors and Publishers took the initiative in protecting the rights of the American composer and text-writer by calling public attention to the injustice done them. Independently of the Society Mr. Thorvald Solberg, Register of Copyrights at Washington since 1897, the leading copyright authority in the United States, undertook the drafting of a bill for a new copyright law which would deal justly with composer, text-writer, corporate interests and general public: in a word, with all concerned. The Society, without consultation with Mr. Solberg, and confident he would prepare a bill equitable from the standpoint of all concerned, pledged itself *in advance* to underwrite unconditionally (and did underwrite) any bill Mr. Solberg might prepare.

Meanwhile a radio corporation bill, the Dill bill, after much lobbying, had been drafted in Washington. Mr. Gene Buck, president of the Society, with a committee including John Philip Sousa, some of the best-known American composers and a group of the country's leading authors (for the Authors' League of America and other organizations had associated themselves with the American Society for the protection of the common property rights attacked) went to Washington. There Mr. Buck proved the justice of the Society's claims so completely that the bill sponsored by the radio interests was killed in committee.

Misleading propaganda to discredit the Society (and by implication the Authors' League of America) as greedy opportunists, eager to rob the American people of a source of legitimate enjoyment, has thus far failed. The composers and text-writers of the United States asked only what every "producer" in every other field receives, a fee or royalty on the profits made by those who exploit their prod-duct. Manufactures pay royalty to the inventor on his inventions. The music and words invented by composers and text-writers are, probably, the most valuable "raw material" used by the radio corporations. Air waves cost nothing and radio sets are sold at a high percentage of profit. To expect the American composer to turn over his musical ideas, his only source of income free to radio corporations whose exploitation brought them many millions of dollars was as unreasonable as to expect the Radio Corporation of America to distribute free radio sets or the American Telephone Company to supply service gratis.

The Perkins bill, a new form drafted by Mr. Solberg in 1925, aims to reform existing copyright law in such wise that all owners of copyright and the "small" composer, in particular, will be protected in their common equity rights. Its passage at the next session of Congress would be a notable ethical victory, would allow the United States to join in the Berne Convention, and would stimulate original creative effort throughout the country. At the Fourth National Radio Conference (November, 1925), the important equity principle "that owners of copyright were entitled to reasonable compensation for the use of their copyright" was agreed to by all interests; and the representatives of the radio broadcasting interests indicated their willingness to pay a reasonable charge for copyrighted numbers used by them.

American Opera.—The year 1925, like those preceding, has produced no great opera by an American composer. Frank Patterson's *The Echo* (Portland, Ore.) was a worthy symbolic prize opera; Charles Wakefield Cadman's *The Garden of Mystery* (New York) after a Hawthorne tale, interestingly scored, was given under circumstances which did not show it at its best; while Cadman's *The Witch of Salem,* announced for performance (Chicago, 1925), uses folk-tunes, Indian airs and a Madagassee pirate melody in telling a tale of witch-hunting days in New England. Francesco B. De Leone's *Alglala* (Chicago) makes vivid, colorful use of Indian thematic material in a tragedy of the Arizona Mesaland; while Ralph Lynford's *Castle Agrazant* (Chicago) is a genial musical handling of a Crusading tale. Both the last-named scores have been given locally: last year saw their first metropolitan première. At the New York Metropolitan, in the earlier part of the year, the Czech Janaček's *Jenufa,* a modern verist score preferring dramatic declamation to melody, was produced. Though a personal success for Maria Jeritza, who sang the title-rôle, it was not found musically compelling. A revival of Verdi's "Falstaff" called forth a sensational demonstration on behalf of the new American baritone, Lawrence Tibbett; but Montemezzi's youthful opera, *Giovanni Callurese,* despite interesting Sardinian folk-color, will hardly find a permanent place in the repertoire. *Flis* (The Raftsman) a *genre* opera by the Pole Moniuszko, sung in Philadelphia, was a pleasing folk-music score in the old style.

The first of the novelties announced for 1925-26 at the Metropolitan was Spontini's *La Vestale,* well staged and well sung, Rosa Ponselle creating the title-rôle. Though theatrically effective and musically noble it is too old-fashioned to appeal greatly to the general opera-going public. Cornelius' *Barber of Bagdad,* an Arabian Nights' tale to a tuneful, romantic score in Weber's style, is too undramatic for present day demands. Ravel's *L'Heure Espagnole* was a masterpiece of delicate, subtle orchestral tonal beauty and irony. It sets forth a realist tale of life in the eighteenth-century Toledo, whose heroine Concepción (Lucrezia Bori) in the absence of an elderly clock-making husband prefers the "native worth" of a muscular muleteer to the tender sighs of two physically lesser lovers.

"Jazz Opera."—Interesting is a group of 1925 scores which try to give the rhythmic and tonal effects popularly known as "jazz" artistic values as a valid expression of contemporory human emotion, social trends, etc. Isaac van Groove's opera *The Music Robber* (St. Louis) projects jazz backward, orchestrally and vocally ragged, into Mozart's life; Emerson Whithorne's futuristic ballet *Sooner or Later* (New York) uses "jazz" in a brilliant musical caricature of the "geometricized" life of the future; while John Alden Carpenter's *Skyscrapers* (ann. New York, 1925) represents "a musical-choreographic abstraction of contemporary American work and play 'noises,'" using jazz as a play noise. W. Frank-Harling's *A Light from St. Agnes* (ann. Chicago, 1925) employs Louisiana folk-songs and "blue" rhythms in a tragic verist presentment of modern jazz life in a Louisiana lumber village; and Lazare Saminsky's *Gagliarda of a Merry Plague* (New York) compresses two hours into twenty minutes in a clever modernist experiment in "chamber opera," with melody a secondary consideration, telling the tale of Poe's *The Red Death* with iron chains, strings of oyster shells and buckshot-filled tom-toms among its percussives.

General Considerations.—Increasing countrywide interest in opera during 1925 has been reflected by seasons in cities where opera had been unknown, and the activities of new opera companies on the Pacific Coast, in the South and in the Middle West. Native talent has produced notable work, but the value of extravagant propaganda for American opera along jingoistic national lines is questionable. In music, as in every other art, to use a homely apothegm, "Every tub must stand on its own bottom"; the flag painted on the tub's side is not material. American operas which musically measure up to those of Wagner, Verdi and Mozart or—aside from absolute musical values—voice the kind of theatric and popular appeal presented by Puccini, Massenet and Mascagni's one outstanding score, will come into their own without forcing. The past year has confirmed the world leadership of the Metropolitan Opera of New York with regard to the artistic luxury of its opera presentation, and the high individual quality of the singers of its company; and the year's most encouraging sign is the trend on the part of individual cities to set up their own opera, promising the American composer opportunities of performance which, should his works justify it, will compel later metropolitan production.

Symphonic, Choral and Other Novelties.—The United States is the world's musical leader considering the number of great solo artists, conductors, etc., appearing before the public. The multiplicity of concerts of every kind allows for mention of only a few more important novelties produced during the year. In the symphonic field have been heard: Henry Coswell's ultra *Ensemble*, in which the Indian "thunderstick," a whirring slab of wood, was used for wind effects as a background for string tone; Hendrick's *Suite Esthétique;* Aaron Copland's *Cortège Macabre;* Edgar Stillman Kelley's noble symphonic poem, *The Pit and the Pendulum;* Gustav Strube's *Lanier* Symphony; Howard Hanson's *Nordic* Symphony and Leo Sowerby's suite *From the Northland;* and the important symphonic poem *Jurgen* by Deems Taylor, a subtle and highly individual interpretation of Cabell's famous (or, if one prefer, infamous) novel; and Henry Hadley's colorful tone-poem *Ocean.*

Specific art-jazz developments in symphonic form have included George Gershwin's *Rhapsody in Blue;* S. Gardner's *Broadway*, jazz rhapsody; L. Gruenberg's *Daniel Jazz* for small orchestra (Stravinsky's *Ragtime* in its orchestral version, new to this country, might here be mentioned); while the orientally exotic was represented by Henry Eichheim's orchestral *Nocturnal Impressions of Peking* and *Korean Sketch* (chamber orchestra) and *Malay Music.* Among new chamber-music compositions Waldo Warner's *Fairy Suite* for strings; Carl Ruggles' *Angels*, for six trumpets; Domenico Brescia's *American Quintet*, strings and piano, developing South American and negro themes, call for mention. Serge Prokofieff's cerebrally interesting Violin Concerto Op. 19; Edward Collins' Piano Concerto and Leo Ornstein's Tartar-flavored Concerto for piano and orchestra also may be adduced. Orchestral novelties by foreign composers heard include: Edgar Varèse's mathematic, ultra-modern and noisily percussive *Intégrales;* Arthur Bliss' fine *Color Symphony* (Purple, Red, Blue, Green); Béla-Bartók's ultra-modern First Orchestral Suite; Dohnanyi's beautifully written *Festival Overture* and *Ruralia Hungaria* suite (Hung. folk themes); Stravinsky's *Renaud* ballet suite; Caplet's *Epiphanie* (a Magi king fresco for 'cello and orchestra) and Borchard's *Elan*, a symphonic piece expressing "the intoxication of movement." Arthur Honegger's tonal idealization of a railroad mogul, *Pacific 231;* L. Aubert's poem *La Dryade;* the symphonic Overture to Roland-Manuel's *Isabelle et Pantalon;* Manuel De Falla's brilliant, colorfully Spanish *El Amor Brujo* suite, and the clever modernist orchestral "Dances" from Paul Hindemith's opera *Das Nush-*

Nushi, a German *succès de scandale*, also should be cited. New choral works include H. J. Stewart's oratorio *The Hound of Heaven;* Howard Hanson's *The Lament of Beowulf;* Carl Venth's notably fine choral score *Pan in America;* Hermann Hans Wetzler's *Legend of St. Francis*, also a major work; Hugo Kaun's ambitious *Mutter Erde;* Cadman's opera-cantata, *The Sunset Trail* (Denver), a development of Western Indian themes to accompany a tale of the shifting of a tribe to a U. S. reservation; and a "biblical" opera, *The Song of David*, by Ira B. Arnstein, employing Hebraic melodies with jazz inflections in the ballet.

Select References. — Important American books published during the past year include:

DE BEKKER.—*Music and Musicians.* An encyclopædic dictionary, with a good special article on Radio.

MATTFELD, Julius.—*The Folk Music of the Western Hemisphere* (N. Y. Pub. Lib.). The only bibliography (musical, not ethnic) covering the white, red and black peoples of North and South America.

BARBEAU and SAPIR.—*Folksongs of Canada*, a valuable study.

COX, J. H.—*Folksongs of the South* (white).

SCARBOROUGH.—*On the Trail of the Negro Folk Song.*

ODUM.—*The Negro and His Songs* (vide Chap. X, "The Blues").

BACHMANN, Alberto.—*Encyclopædia of the Violin*, edited by Albert E. Weir, covering the field of the art with unusual completeness.

FLESCH, Carl.—*The Art of Violin Playing*, justifying Sevčik's comment that "it is a bible teachers as well as players will consult as long as the violin is played."

AUER, Leopold.—*Violin Master Works and Their Interpretation*—valuable.

HILL, E. Burlingame. — *Modern French Music*, an excellent and sympathetic consideration of its subject.

SPAETH, Sigmund.—*Commonsense in Music.* A book for practical development of study and appreciation.

MARTENS, Frederick H.—*A Thousand and One Nights of Opera*, for the first time considers the stories and music of some 2,000 operas in a logical sequence of historic period instead of alphabetically.

WATKINS, M. Fitch.—*Behind the Scenes at the Opera.* Intimate revelations of backstage music life and work.

HAUK, Minnie.—*The Memories of a Singer.* Pleasantly discursive recollections of the American *prima donna.*

HULL, Dr. Eaglefield.—*Dictionary of Modern Music and Musicians*, (1924)—remains unique of its kind.

SCHOLES, Percy.—*A Listener's History of Music.*

HADOW.—*Music;* and

NEWMANN, Ernest.—*Musical Motley Essays*, and *The Music Critic's Holiday*, deal with music appreciation.

HIGHT, G. A.—*Richard Wagner.* Valuable critical biography, discounts the sex angle in dealing with its subject.

NIECKS, Dr. F.—*Robert Schumann.*

STRACHEY, Marjorie.—*The Nightingale*, a semi-fictional life of Chopin.

HOLDBROOKE, J. H.—*Modern British Composers.*

GRATTAN-FLOOD, H. W.—*Early Tudor Composers.*

BUCK, P. C.—*The Scope of Music.*

NORTHCOTT, R.—*Covent Garden and the Royal Opera.* Valuable detailed study of subject.

GRAY, Cecil.—*A Survey of Contemporary Music.* A serious constructive work.

DYSON, G.—*The New Music.* An interesting harmony grammar of the modernist musical idiom.

THE THEATRE

BY MAURINE WATKINS
DRAMATIC CRITIC

Play Types.—A year that inherited *Abie's Irish Rose, White Cargo*, and *The Show-Off;* that led off quickly with *Processional, Desire Under the*

Elms, and *They Knew What They Wanted;* that witnessed a remarkable number of revivals of Congreve, Sheridan, Gilbert and Sullivan, Ibsen, and Shaw; that suffered *Aloma of the South Seas, Flesh,* and *The Valley of Content;* that encouraged importations yet sent to an early grave such worthwhile native products as *Close Harmony* and *Lucky Sam McGarver;* that demanded clean, intelligent musical shows and permitted stupid salacity in its drama; that took to its heart *Is Zat So?* and bowed before *The Green Hat.* An interesting and significant year in the drama.

The plays named above are all professional New York productions. Plays are presented increasingly by Little Theatre and other experimental groups throughout the country; every city of size has its commercial theatres for plays on tour and often its own stock company; and Chicago and Los Angeles are professional producing centers, yet according to tradition any consideration of the drama deals with plays that have been seen on Broadway. Perhaps according to reason, for commercial productions elsewhere are, in the main, either triumphantly radiating from New York or hopefully trying to get there. Stamford knows well it is an official taster, and Oshkosh feels satisfaction in "the original New York company."

Growth of the Art Theatre.—Something has happened: Broadway, once a square mile centered about Times Square, now reaches from Cherry Lane to the new home of the Theatre Guild, from the Provincetown Theatre to the Neighborhood Playhouse. Ten years ago a list of notable plays meant a catalogue of the stars under the banners of Belasco, Frohman, *et al.* Even in 1919 the Theatre Guild, then a struggling, penniless band, was the only artistic group that justified its existence professionally. Now, fully one-third of the leading financial successes (if we are to judge by length of run), and at least two-thirds of the artistic triumphs (if we are to believe the critics), belong to the so-called art theatres.

The year marked the tenth anniversary of the Neighborhood Playhouse and the birth of the Stagers and likewise of the Actors' Theatre, which sponsored an unusual program of revivals. The Theatre Guild, once the Cinderella of Washington Square, opened its magnificent building on Fifty-second Street and retained control of two others. The prolific Provincetown group divided: the original theatre was kept for experimental plays; while a second organization, under O'Neill-Jones-Macgowan, devote themselves to a drama less chaotic than *Adam Solitaire,* promptly moving uptown any play that seems a good financial risk. (This has brought cries from the commercial managers: when art makes money is it art? To which the art theatre responds: money is an attendant circumstance, not a purpose.)

The financial success of the art groups in the commercial world is, perhaps, the most significant event in the dramatic history of 1925. The commercial managers, stimulated by this competition, will use more thought in selecting plays and greater care in producing them. Heretofore the art groups have played largely to special audiences who were in full sympathy with their experimental purposes and made generous allowance for shortcomings, greeting with approval whatever was new, irrespective of its merit. Now they are meeting commercial theatres on their own ground, and must face the acid test of dollars and cents. Their more general audience will demand that any deviation from the accepted standard, both in theme and method, be accompanied by superiority. Thus both commercial and art producer may be held to higher standards by the fact that the audience now has a choice. The greatest value, of course, is the effect it will have upon native drama. What so far has been the result?

Native Drama in the Art Theatre.—In the past year, leaving aside the hardy perennials of other seasons and the musical shows and revues, the three plays to which New York gave heartiest approval by box-office returns and critics' verdicts were: *What Price Glory, Desire Under the Elms,* and *They Knew What They*

Wanted. Three plays of American life by American authors.

The first of these, produced by Arthur Hopkins, who is neither "group" nor commercial manager, was written by two army men, Maxwell Anderson and Laurence Stallings, and showed the dirt, the monotony, the petty quarrels and jealousy that spell War. A forbidden subject (war plays had been passé since *Lilac Time*), treated from a daring angle, the play aroused immediate and lasting interest, partly because of its sincere realism and partly, it must be admitted, because of the pungent language which knew not dash nor asterisk.

This was followed shortly by the Provincetown Theatre production of Eugene O'Neill's *Desire Under the Elms,* a New England study; the passion of a stern, puritanical old man for his land, the guilty love between his young wife and his son; the murder of their child with the resultant deaths. Not a pleasant subject, but treated with Greek starkness "to purge the soul of pity and terror by pity and terror."

The third of the significant trio, *They Knew What They Wanted,* produced a few weeks later by the Theatre Guild, was by Sidney Howard, who had formerly been identified with plays in a romantic vein. It told the story of an Italian "picture" bride in California, who turned to a young roustabout on her wedding night instead of the older husband, who was accidentally crippled on the day of the ceremony. Some time later she tells her husband, whom she has come to love, of her experience with the other man: he wants her, so forgives her; she wants love and a home, so she accepts his forgiveness; and the roustabout wants freedom, which is his. They all knew what they wanted and they got it. Well constructed, with discerning characterization, vivid dialogue, and a clear, trenchant philosophy, the play won the Pulitzer prize, offered annually for "that original American play presented in New York which shall best represent the educational value and power of the stage in raising the standards of good morals, good taste, and good manners."—As yet the Committee has not explained upon which count the award was made, but the announcement brought relief to those who feared that Mr. Pulitzer's requirements would limit the prize to such productions as *The Passing of the Third Floor Back* or *The Fool.*

Other Native Plays.—Another Theatre Guild production was the center of controversy for four months or so as it struck a decidedly new note. This was *Processional,* by John Howard Lawson, "a new form in the American theatre, combining the method of the burlesque show with the legitimate form, keeping both to the jazz tempo." It was, incidentally, the only free-form play to attain commercial success, and it was carried over largely by the extraordinary force underlying the entire play.

Such then were the tendencies of the native drama sponsored by the art groups. Stern stuff, of the type known as realistic; unpleasant in theme, sometimes morbid; yet with the power and vitality that mark a living, growing thing.

The following fall (1925) saw a second crop of plays from the most promising of the young dramatists, excepting O'Neill. Anderson and Stallings gave vivid treatment to another war theme (*First Flight*), but the Revolutionary period seemed too remote to arouse great emotion. *Outside Looking In,* a vigorous study of hobo life, by Anderson alone, played with fair success to the special audience upon which the Greenwich Village triumvirate can depend. *Lucky Sam McGarver,* Sidney Howard's study of New York night club life, closed, undeservedly, after a few weeks. George Kaufman, heretofore in collaboration, struck a popular note in the story of *The Butter and Egg Man,* who learned about Broadway first-hand and found it was pay as you enter. George Kelly, of *The Torchbearers* and *The Show-Off,* showed steady advance in technique in *Craig's Wife,* a painstaking characterization of a woman whose meticulous domesticity turned her home into a house—a manless house. Philip Barry, who had gained popular favor earlier with *You and I* and

The Youngest, entered delicate comedy with *In a Garden*.

Native Drama in the Commercial Theatre.—Meanwhile *Is Zat So?*, by James Gleason and Richard Taber, was the crowning favorite, to judge from length of run, of the commercial productions. Peddled about from one manager to another for a period of years, it was finally produced by Earle Boothe with one of the authors (Gleason) in the cast. It is a vigorous comedy of the ring—breaking into society by way of the fist—and the racy diction, human characterization, and punches of various kinds, made it at once a knock-out. This was quickly followed by another Gleason play with George Abbott as co-author: *The Fall Guy*, a dope-peddling story in which the dupe, who thinks he is merely bootlegging, finally turns.

Photographic comedy of middle class life proved generally popular: *White Collars*, an Anne Nichol's offering with millionaire and proletariat; a John Golden production, *Pigs*, by Patterson McNutt; *The Poor Nut*, a play of college life in Ohio, by the Nugents; *The Family Upstairs* (Harry Delf, a vaudeville man), treating the national game of bluff; and *The Sap*, which likewise trailed the success of *The Show-Off*. Vincent Lawrence, who formerly used a lighter touch, joined the group with his golf comedy, *Spring Fever*.

Southern folk drama, quite popular for a few seasons, was evidently not in vogue, and *Ruint*, by Hatcher Hughes, who had won the Pulitzer prize with *Hell-Bent-for-Heaven*, and *The Dunce Boy*, by Lulu Vollmer, who had known distinct success with *Sun-Up*, were given slight encouragement.

The mother theme was given fresh treatment in *Mrs. Partridge Presents*, a worthwhile comedy produced by Guthrie McClintic, with Blanche Bates in the leading rôle and Ruth Gordon, whom the critics found irresistible, as the friend of the family. The contrast in generations was rejuvenated in *Dancing Mothers* (Edgar Selwyn) by a twist which sent mother blithely on her way to live her own life. The triangle play was represented by Gilbert Emery's *Episode*, in which the three characters found an indiscretion just that. The best of the biographical plays was *The Firebrand*, by Edward Mayer, based on the life of Cellini, which enjoyed a long run with Joseph Schildkraut as the hero.

There was the usual assortment of conventional types. Belasco's production of *The Dove* was melodrama at its best. *The Carolinian*, by Sabatini, colorful and crowded with action, was curiously unconvincing. The mystery play hung on in *Spooks* and was burlesqued hilariously in *The Gorilla*. Owen Davis' hundredth play, *Easy Come, Easy Go*, followed the crook formula in farce form, while *Canary Dutch* (Willard Mack) gave the sentimental version.

George M. Cohan, playwright, producer, and actor, returned to his own as all three in *American Born*. The ubiquitous Channing Pollock was present with *The Enemy*, a war tract that seemed quite sane in 1925.

Such is a cross section of native drama in the hands of commercial producers.

Revivals.—It was preëminently a year of revivals. The all-star cast of *The Rivals*, headed by Mrs. Fiske, put Broadway in its place by going on the road first and smashing all box-office records. Walter Hampden, after his triumphal tour in *Cyrano*, settled down to repertory in the Hampden Theatre with Ethel Barrymore as co-star.

The orthodox *Hamlet*, with Hampden-Barrymore, or the Horăce Liveright production of the Dane in modern costumes, with young Helen Chandler, a season's discovery, as Ophelia—New York had its choice. Shakespeare, who has passed all high school and college tests, survived also the sartorial; and left the conviction that "the play's the thing."

Pinero fared comparatively well with Ethel Barrymore as *The Second Mrs. Tanqueray*, but the two Barrie revivals suffered from miscasting. Neither Ruth Chatterton nor Ralph Forbes was suited to *The Little Minister*, and Marilyn Miller was a brittle and sophisticated *Peter Pan*.

Revivals tumbled with rapidity and

seeming ease from the smaller groups. The Neighborhood Players presented *The Little Clay Cart*, a Hindu play one thousand years old, and *The Critic* (Sheridan). The witty, wicked *Way of the World* (Congreve), which fitted in startlingly with certain characteristics of the season, packed the Cherry Lane, and *Love for Love*, beautifully done, was offered by the Provincetown group. They likewise revived the famous *Patience* (Gilbert and Sullivan) with more attention to words than score, yet with stimulating results.

The Ibsen revivals were extraordinarily satisfying. Margaret Wycherley in *Rosmersholm* and Eva Le Gallienne in *The Master Builder* gave memorable performances, and *The Wild Duck*, at the Actors' Theatre, was one of the outstanding productions of the year. Directing honors should go to Dudley Digges for this, for bringing back to the stage Laurette Taylor in the pantomime, *Pierrot the Prodigal*, and for the two interesting presentations of Shaw's *Candida*, which gave opportunity to compare Katharine Cornell, the critics' favorite actress, with Peggy Wood, known heretofore as a singer.

Shaw was represented early in the year by the Theatre Guild production of *Cæsar and Cleopatra*, with Helen Hayes as a flapper siren of the Nile, and in the fall (1925) by *Arms and the Man*, which marked the beginning of the Guild's year of Shaw repertory.

Importations from England.—Excepting Barrie's curtain-raiser, *Shall We Join the Ladies*, Galsworthy was the only one of the more established English playwrights to have a New York première. *Old English*, a detailed portrait of a staunch, human old man, was ably presented by Winthrop Ames, with George Arliss in the title rôle. The smoothness of the production and the actor's well-rounded characterization rather than the play, which lacked the author's usual "spire of meaning," made it a season's success in New York and also on the road.

Also out of England came *The Green Hat*, the stage story of that gallant lady, Iris March, descendant of Camille. It was superbly presented by A. H. Woods with a cast that knew better (Katharine Cornell, Margalo Gilmore, and Leslie Howard). Just around the corner Michael Arlen's other play, *These Charming People*, pictured once more life in Mayfair, with Cyril Maude and Edna Best, accounted the most promising of young English actresses. Mr. Arlen himself in person was accorded throughout his stay in New York the frenzied homage usually reserved for movie stars and prize-fighters.

Another young Englishman, Noel Coward, was also the center of Broadway attention, both for his writing and acting. *The Vortex*, another picture of decadent English life revolving about an unfaithful wife and her drug-taking son—a part created by the author—caused instant sensation. *Hay Fever*, however, his second play, which had gone quite well in London, met with much less success.

Frederick Lonsdale kept the lightly cynical touch that distinguished *Aren't We All?* and *Spring Cleaning* two seasons ago in Ina Claire's vehicle, *The Last of Mrs. Cheney*, in which he made comment on present moral standards in two generations. *Young Woodley*, the story of a schoolboy's affair with the headmaster's wife, was a remarkable first play by another young Englishman just twenty-three years old; banned by the Lord Chamberlain, it found staunch defense in the critics this side of the Atlantic. *The Pelican*, an emotional drama by Tennyson Jesse, followed the pattern for a well-made play of the '90s. Ashley Dukes, the critic, sent over *The Man with a Load of Mischief*, a comedy of Bath in the early nineteenth century.

The younger English group deal with those who dwell in Mayfair rather than with the white-collar class, show knowledge of construction and good "theatre," and have a deftness of touch beyond most American writers, but seem, in general, to have found audiences rather than themselves.

Continental.—The chief French offering in the commercial theatre was a Brieux play (*Accused*), produced by Mr. Belasco, with Sothern as the scrupulous lawyer who is forced with legal precision to face one professional and ethical problem after another. The Alfred Savoir comedy, *The Grand Duchess and the Waiter,* proved merely an entertaining trifle. *The Last Night of Don Juan* (Rostand) was presented at the Greenwich Village Theatre. *The Kiss in a Taxi,* with Arthur Byron, and *Oh, Mama,* with Alice Brady, were perhaps the best of the usual naughty farces.

Stolen Fruit was the Gladys Unger adaptation of Dario Niccodemi's play, in which Ann Harding gave a striking performance as the young school mistress who finds that the illegitimate child she believed to be dead is one of her own pupils.

Hungary furnished the bulk of interesting importations, and Ferenc Molnar was chief of the Hungarians. *The Guardsman,* a sophisticated, clever comedy, was an outstanding Theatre Guild success in the winter of 1924-1925, and *The Glass Slipper,* his Barrie-like story of a Cinderella who spun dreams about a most unprincely man—a Cinderella not quite of this world, played with exquisite feeling by June Walker—was a brilliant opening for their second season. *Carnival,* a vehicle for Elsie Ferguson earlier in the year, pleased the eye and ear but did not satisfy the mind.

Vadja was represented by *The Harem,* produced by Belasco, with able characterization first by Lenore Ulric, then by Vivienne Osborne; and Melchior Lengyel met with success in *Antonia,* which brought Marjorie Rambeau back to Broadway.

Interesting as some of the importations were, none of them had the freshness and vitality of the best native drama, and the conclusion may be drawn that America must look within for her most significant drama.

Musical Shows.—The best of the musical shows reached a high standard. The songs were tuneful but not saccharine, sung in some instances by those who had come via grand opera, proving that a good voice is not necessarily a handicap for a stage career, and the books were, for the most part, intelligent.

Rose-Marie, one of the most popular of the operettas, had an original story of life in the far North, with colorful scenic effects and carefully balanced dancing. Three of the most successful had books based on romantic stories that had long been favorites: *The Student Prince,* a delightful musical version of *Old Heidelberg,* with Ilse Marvenga and Howard Marsh; *The Vagabond King,* based on the Francis Villon story, *If I Were King;* and *Princess Flavia,* which retold with music *The Prisoner of Zenda.*

Musical comedy also kept to stories that had proved their popularity: *Captain Jinks,* a dancing version of the singer's career; *The City Chap,* based on *The Fortune Hunter;* and *No, No, Nanette,* from the comedy, *My Lady Friends.* This last was a professional anomaly, the first company (with Louise Groody) played for over a year in Chicago and others elsewhere before it was brought into New York.

Big Boy, Louie the 14th, and *Sunny,* with Al Jolson, Leon Errol, and Marilyn Miller respectively, found favor, and *Lady, Be Good* was made a high point of the season by the delightful dancing of the two Astaires.

New editions of the Follies and the Music Box Revue were added to a goodly number of scandals and vanities. The art theatres ventured even here, the juniors of the Theatre Guild presenting a zestful show in *Garrick Gaieties,* and the Neighborhood Playhouse offering clever burlesque on the season's successes in *The Grand Street Follies.*

Immorality and Censorship.—Conditions back of the footlights, generally accepted as concerning only the participants, have long been a subject for reformers, but the phase affecting the audience—the character of the plays—has now become their task. At all times on the boards appear productions, both of musical and dramatic nature, which would offend certain persons; most of the time some plays are on which would prove distasteful, morally, to many; and 1925 saw some which incited to rebellion even the actors, of an indecency admitted by the producer himself.

Who is responsible for such a condition? The public blames the producer, and he tosses the ball back by declaring that he gives them only what they demand. The Puritan considers such indecency an integral part of the drama; and the non-city man, smug in the knowledge that such plays cannot come to his town, attributes it to the inherent wickedness of the New Yorker. He, in turn, charges the out-of-town visitor, who flocks to shows in New York that he would never attend at home. And he adds as explanations the heterogeneity of the city, the preponderance of foreigners with generally lower standards of morality, and the by and large characteristics of theatrical producers.

Whatever the reason, early 1925 saw a goodly assortment of cardinal sins, treated from various angles. Possibly certain managers were inspired by the financial success of the art groups and decided to follow the unpleasantness of their themes; but they missed the method of treatment, substituted salacity for sincerity, and merely plunged into a season of pornographic photography.

One play was called to the attention of the police, then another. The District Attorney stepped in, and the pulpit and press, in a righteous desire to clean up the stage, turned on full power of tongue and pen, denouncing by name both plays and producers.

Then New York was treated to a page from Gilbert and Sullivan. One manager offered to close his show, virtuously asserting that he had produced it merely to waken the public to the condition of things in Denmark. Another halted at withdrawal but suggested deletion of offensive lines; whereupon the first withdrew his offer to close. And while Attorney and Commissioner reflected and press expounded and reformers wired in advice, the productions under fire did business to capacity houses, for the public at once flocked to see what it was all about. One play, practically scheduled to close because of empty seats, ran on for several weeks on such publicity.

Clearly the existing condition whereby the manager produced his play and ran the risk of arrest if it was indecent was unsatisfactory. Was there a solution in censorship? The word aroused a whirlwind of protest.

"Censorship will not hurt the second-rater!" said Laurence Langner. "He can adapt himself to it. But it can hamper and even destroy the man of genius, whose imagination must range untrammelled in any field he chooses, if we are to have the fruits of his talents. An O'Neill writing plays to suit an American censor is unthinkable; a Sidney Howard deciding beforehand whether some political appointee will object to his writing *They Knew What They Wanted* would be a calamity. A censorship in the American theatre would emasculate our authors at a time, the first in our history, when their vigor and artistry is winning international recognition." (*Theatre Guild Bulletin*, November, 1925.) To which the conservatives respond: It is true England has no Avery Hopwood, but there are Masefield, Shaw, Galsworthy, Drinkwater, Barrie.

Play Jury.—More plays came to the attention of the District Attorney—some dozen all told—and finally, after various proposals, the Play Jury plan was adopted. A panel of twelve, drawn from one hundred worthy and judicious citizens listed with the Police Commissioner, were to attend separately each offending play, and their verdict—cut, revise, or withdraw—was to be final.

The play selected for the first visitation was *Desire Under the Elms*. Again a storm of protest from those who felt to question O'Neill was blasphemy. Telegrams that made excellent advertising copy poured in from all parts of the country: if evolution had its Scopes, the drama had O'Neill.

The jury gave *Desire* a clean bill, suggested revision in one or two other plays, and gradually faded out with every one happy. The Puritan had proved there was something wrong with the stage, the advocate of freedom had sidestepped censorship, the forces of Law and Justice had demonstrated that they could handle the situation, and the managers had doubled their profits.

But certain questions lingered in the public mind:—What determines the morality of a play? The subject matter? Why is the Bible privileged? How long must a man be dead to gain the freedom of the Greeks and Shakespeare? Is it treatment? Or the effect on the audience? And who shall judge that effect beyond the man himself?

Disturbing questions, not answered in 1925.

POPULAR PLAYS IN NEW YORK

(November 15, 1924, to November 15, 1925)

Standard

Abie's Irish Rose
White Cargo
The Show-Off
What Price Glory
Desire Under the Elms
They Knew What They Wanted
Is Zat So?
The Guardsman
The Firebrand
Pigs
Dancing Mothers
The Gorilla
The Poor Nut
My Son
Old English
The Harem
White Collars
Ladies of the Evening
Sky High
Hell's Bells
The Dove
Aloma of the South Seas
Spooks
The Kiss in a Taxi
Outside Looking In
Cradle Snatchers
The Green Hat
The Vortex
The Butter and Egg Man
Applesauce
Merry Merry
Accused
American Born
These Charming People
Stolen Fruit
Craig's Wife
The Glass Slipper
Antonia
The Enemy
Easy Come, Easy Go
The City Chap
Young Woodley
The Last of Mrs. Cheney
The Carolinian
Naughty Cinderella

Musical

Kid Boots
Rose-Marie
The Student Prince
Ziegfeld Follies
Big Boy
Music Box Revue
Artists and Models
Louie the 14th
Garrick Gaieties
Lady, Be Good
The Love Song
Earl Carroll Vanities
Kosher Kitty Kelly
Gay Paree
Captain Jinks
No, No, Nanette
The Vagabond King
Princess Flavia

Revivals

The Little Clay Cart
Love for Love
The Way of the World
The Critic
The School for Scandal
Patience
Hamlet
Hamlet (in modern dress)
Othello
The Wild Duck
The Master Builder
Rosmersholm
Arms and the Man
Cæsar and Cleopatra
Candida
The Second Mrs. Tanqueray
The Little Minister
Peter Pan

MOVING PICTURES

By Maurine Watkins
Motion Picture Critic

Year's Trend. — Moving pictures, which have risen in the course of a quarter century to fourth place among American industries, enjoyed a year of prosperity in common with the rest of the country. No more pictures were produced than usual, but large returns were realized, due in part to increased public support, which the radio, contrary to the fears of a year ago, did not diminish, and in part to the decline of the stupendous spectacle picture which relied for appeal primarily on its lavish expenditure and impressive numbers. Laying aside circus tactics also furthered the development of moving pictures as an art. Bereft of his gilded trappings the producer was forced to interest his public by an appeal to the mind rather than to the eye alone, and consequently the offerings of 1925 were of a higher standard than heretofore.

Subjects.—A glance at the titles of the year shows that some of the old type favorites remain: there were a few Westerns, such as will always attract, so long as small boys and swift riders exist; two or three of the siren pictures that made movies infamous a dozen years ago but seem ludicrous anachronisms to-day; and several dying gasps of the flaming youth movement. But the more ambitious productions essayed new fields; not necessarily different kinds of stories, but in a different mood. The slapstick comedy gave way to a humor that was more subtle and often intellectual, and satire and fantasy, a combination that would have been impossible three or four years ago, were successfully blended.

Successfully, that is, from the artistic standpoint, but not from that of the box-office; for the producer found that when he left his special, sophisticated audience of New York and the larger cities, these pioneers in artistry fell flat. His general public did not care for delicacy, nor sincerity if accompanied by a grim story, and satire which left them wondering what it was all about. In appreciation the public has not kept pace thus far, with the producer.

Methods. — No great physical strides were made, no striking innovations in mechanical devices, and the stories in general followed the conventional form. But as the director now gets his effects by a skillful selection of detail rather than by massing a hundred Numidian lions, so the actor is using restraint and suggestion instead of gymnastics and facial contortion. Motion pictures seem to have grown up physically at least, and both director and actor are bending all efforts to develop mentally, to fill out the hollow places in this enormous structure, and to smooth off the rough corners that necessarily accompanied such rapid growth.

Shifting Interest. — Back in the days when the movies were young, films were known by the companies that sold them: an Essanay, a Vitagraph, a Universal. Then as certain personalities among the actors stood out consistently, the public began to demand their names, and soon there developed the star system, which choked the growth of the art for several years. This system will probably never die out, for certain individuals will always possess more magnetism and appeal than others, but it is gradually giving way to the sovereignty of the director.

A study of the half dozen best and worst films of the year shows that in most cases the director was responsible. Stories that seemingly held promise were lost in the filming, capable actors met surprising failures; while a talented director, with the aid of an adequate cast, would whip a mediocre, trivial story into a thing of delight. Many of the companies have become so large that they seem mere distributing centers; certain stars are so eager to duplicate yesterday's success that their names are merely trademarks for those who want standardized amusement of a given brand; but the announcement of a production by any one of four or five directors means a picture that is worth watching, an event that may be significant in the onward march of the motion picture.

Cool Receptions.—*Greed*, the Eric von Stroheim production of Frank Norris' novel *McTeague* was the most ambitious undertaking of the year and a revelation of what the movies can do when they will. A story told without a wasted stroke, penetrating characterization by Zasu Pitts, bitter, relentless, inevitable—the public would have none of it. They were also bored by *The Last Laugh*, an Ufa (German) production, which stood unique among the year's films for simplicity and pathos. Emil Jennings gave a remarkable portrayal of the old doorman who loses his grand, liveried position, steals his uniform and continues to wear it home so that his family may not know his disgrace; and finally, by chance, comes into a fortune that enables him to return to the hotel and enjoy the last laugh. The story was told entirely in pantomine without the aid (or hindrance) of subtitles—a real moving picture. Neither did the public (outside of New York) care for *Beggar on Horseback*, that curious mixture of satire and fantasy by Marc Connelly and George Kaufman, which was brought to the screen by James Cruze.

Notable Successes.—On one picture, however, public and critics were agreed: the adaptation of Barrie's *Peter Pan*, directed by Herbert Brenon. Faithful to the author's intent it caught the magic of Never-Never land and sustained the mood throughout—a triumph of wistful beauty. A satisfying production in itself, it was also important because it discovered three unknown actresses who quickly took their places in the film world: Betty Bronson, whose eager spirit of elfin youth made her an ideal Boy Who Never Grew Up: Mary Brian, the gentle Wendy, who became the most natural girl on the screen; and lovely Esther Ralston, who played Mrs. Darling.

Another worthwhile picture that found public favor was von Stroheim's second offering of the season, *The Merry Widow*, a brilliant version of the light opera, which showed wit and intelligence, and revealed Mae Murray as something more than a clever dancer and John Gilbert as the most popular of leading men.

The Vanishing American, a Zane Grey story of an Indian's love for a white girl, was intended to repeat the success of *The Covered Wagon*, but lacked the epic quality that distinguished the earlier picture. *The Wanderer*, following the religious tide of *The Ten Commandments* of the previous year, was a lavishly beautiful re-telling of the prodigal son, directed by Raoul Walsh, with a season's find, Greta Nissen, as Tisha the siren; and William Collier, Jr., as a lovable adolescent black sheep. *Siegfried*, a Ufa production, was a spectacularly impressive but dull version of the Niebelungen legend.

The Phantom of the Opera was hailed long in advance as Lon Chaney's masterpiece, but the famous make-up hid him too completely, and his artistry in pantomine was shown more clearly in *The Unholy Three*, a crook melodrama with a midget, a strong-man, and a ventriloquist—the thriller of the year. The heart picture of 1925 was *Stella Dallas*, a story of mother love and sacrifice, kept from over-sentimentality by careful directing by Henry King and excellent acting by Bella Bennett.

With the Actors.—The established stars for the most part repeated themselves in the type of play that had brought them fame and wealth. Mary Pickford returned to curls and childish pranks in *Little Annie Rooney;* and Douglas Fairbanks continued his dashing, breath-taking career in *Don Q*, son of Zorro. Charlie Chaplin became again a lone, gay, pathetic little figure with the hat, cane, mustache, and walk that mean Chaplin, in *The Gold Rush*, an uneven production with slapstick comedy and genuine pathos. Jackie Coogan, grown a little taller and a bit self-conscious, returned to his cap and baggy trousers in *The Rag Man* and *Old Clothes*. Lillian Gish was once more wistful and lovely in *Romola*, a picture historically authentic but which was slow in movement and held interest primarily by the comedy work of Dorothy Gish. Valentino came back as *The Eagle*, a lone Cossack bandit who is loved by a queen, but did not quite recapture the fire of *The Four Horsemen of the Apocalypse.* Norma Talmadge held her title as an emotional and romantic actress in *Graustark.*

Harold Lloyd produced another comedy (*The Freshman*), which witnessed college life and the football field through his spectacles; and Thomas Meighan went steadily on his way in George Ade stories. Pola Negri continued her vain search for a script that suits both her temperament and the taste of Mr. Will Hays, Movie Censor; and Nazimova curbed her power, to good advantage, in a subdued portrayal of the Portuguese mother in the Cape Cod story, *My Son.* Corinne Griffith still gave her beauty to films that demanded slight effort; Bebe Daniels gathered popularity in such trifles as *The Manicure Girl;* and Mary Astor and Mary Philbin continued to be the loveliest of screen actresses.

Gloria Swanson, who advanced at least in publicity, took a fling at history in *Madame Sans Gêne;* tried double emotional rôles in *The Coast of Folly;* and then returned to the characteristic comedy of her earlier days in *Stage Struck.* Colleen Moore, after an ambitious but not wholly satisfying attempt as the mother in *So Big* and a Cinderella part in *The Desert Flower,* gave a sparkling performance in *Sally,* sharing honors with Leon Errol, who had created on the stage the part of the dancing waiter. Marion Davies, proving the efficacy of hard work, satisfied a large public and some of the critics with her comedy work in *Zander the Great,* and then returned to a picture of New York life in *Lights of Old Broadway.* Norma Shearer demonstrated great versatility and took first place among the younger actresses.

Betty Bronson was undoubtedly the find of the year; she passed quickly from Peter Pan to the rollicking Bret Harte heroine of *The Golden Princess,* then to a modern rôle in *Are Parents People?* to a sweet costume part in *Not So Long Ago,* and back to whimsicality in another Barrie film, *A Kiss for Cinderella.* Vilma Banky, a lovely blonde from Budapest, was the second newcomer of great promise; she showed strong emotional possibilities and haunting grace in *The Dark Angel,* and was later a foil for Valentino in *The Eagle.* Greta Nissen, also straight from Europe, was the ballet dancer in *Beggar on Horseback* and the enchanting siren of *The Wanderer.*

Among the men Adolphe Menjou stood out as a sophisticated, dependable actor, with perfected technique, in adult comedy. Percy Marmont continued his sacrificing career, partly because he plays intellectual and spiritual characters so well, and partly because there are so few screen actors who could do such parts at all. John Gilbert made remarkable advance in both skill and popularity, and Ronald Colman also became a promising leading man. Richard Dix gave a splendid performance in *The Vanishing American,* and Richard Barthelmess, known heretofore in serious and romantic rôles, broadened his range by a delightful comedy, *Shore Leave.* Buster Keaton added *Go West* to his list of solemn comedy portrayals, sharing honors with a cow; and Raymond Griffith, with *Paths to Paradise* and *A Regular Fellow,* showed he had joined Chaplin and Lloyd as a distinctive comedian. Reginald Denny had a swift farce in *I'll Show You the Town,* and Syd Chaplin as *The Man on the Box* and *Charley's Aunt* became something more than Charlie's brother.

With the Directors.—Foreign directors lead in both strength and sophistication, but the Americans are gaining rapidly. The power of *Greed* (von Stroheim), *Siege,* a stern New England portrait by Sven Gade, and *The Tower of Lies* (Seastrom), and the intelligence and appreciation back of *The Merry Widow* (von Stroheim) and *Kiss Me Again,* a trifle tossed off by Ernst Lubitsch, were not paralleled. But Monta Bell brought a fresh, independent touch to *Pretty*

Ladies; King Vidor showed feeling for satire in *Proud Flesh;* and Tod Browning, originality of method in *The Unholy Three.*

Peter Pan and *A Kiss for Cinderella* revealed Herbert Brenon at his best. James Cruze showed the greatest versatility; fantasy and satire in *Beggar on Horseback;* quiet humor in *Marry Me,* best of the small-town comedies; and the sweeping action associated with his name in *The Pony Express,* a story of Lincoln's time. Mal St. Clair, twenty-eight years old, gave brilliant promise with the production of *The Trouble with Wives* and lived up to it with *The Grand Duchess and the Waiter. The Dark Angel* owed its background of artistry and beauty to George Fitzmaurice.

D. W. Griffith, dean of directors, gave the public a sincere, simple story with German setting in *Isn't Life Wonderful?* and when they did not care for it, turned to carefully planned comedy effects with *Sally of the Sawdust.* Clarence Brown turned out an extraordinary character study in *The Goose Woman;* Allan Dwan, long the guider of Gloria Swanson's fortunes, did excellent work with *Night Life of New York;* and Rupert Julian made *The Phantom of the Opera* an interesting study of the weird.

Altogether it was a promising year: directors put aside lazy methods and brought to the films sincerity, imagination, and an intelligence that means much for the future.

With the Authors.—Original writing, if such there be in films, has in no way kept pace with acting, and directing. Some of the best captions of the year were lines lifted from the stage versions, and in certain cases fairly good films were ruined by the stereotyped, sentimental subtitles that have been in stock for ten years. Stories written directly for the screen were usually mediocre; sometimes they were the product of regular scenario writers, but more often the work of a novelist or playwright lured to Hollywood by blare of trumpets and clink of coin. Joseph Hergesheimer, from whom much might have been expected, turned out an unimportant story in *Flower of the Night* for Pola Negri, and Michael Arlen will make his contribution to the lady in *Crossroads of the World,* for the title of which he received fifty thousand dollars. A notable exception was *The Big Parade,* a story of the Great War written by Laurence Stallings.

Certain screen versions of stage successes were admirable: *The Merry Widow, Sally, The Dark Angel, Sun-Up, Shore Leave, Charley's Aunt;* but others were faint shadows: *The Boomerang, The Circle, Grounds for Divorce, Déclassée, East of Suez.* Sometimes the directors were responsible, but at others the Censor limited them in such a way as to make the story pointless.

The development of moving pictures is shown in the type of novel chosen for adaptation. The historical (*Romola*) and colorful (*Graustark*) still have their place, but the quiet and psychological were also attempted. *The Little French Girl,* Anne Sedgewick's study, of French and English morals; *So Big* (Edna Ferber); *Lord Jim* (Joseph Conrad), which unfortunately was shifted into mere melodrama; *Faint Perfume,* which lost entirely the flavor of Zona Gale's novel; *The Lost Lady* (Willa Cather's painstaking study); *Proud Flesh, The Homemaker, Wife of the Centaur*—none of them wholly successful, some very bad indeed; but they show the direction in which the movies are going, and it is significant that the failures were due for the most part to execution—the reach exceeded the grasp—and not to deliberate distortion of the story.

Interesting Productions.—Out of the multitude of films, the following are especially noteworthy:

The Lost World: Conan Doyle's tribute to the brontosaurus, pterodactyl, and allosaurus.

Grass: dealing with the migration of the lost tribe of Persia.

Her Night of Romance: which tied Connie Talmadge with Dorothy Gish for first honors in comedy.

The Street of Forgotten Men: an interesting story of a fake crook, admirably portrayed by Percy Marmont, directed by Herbert Benon.

Are Parents People? another view of Betty Bronson, this time as the little child who leads them.

Old Home Week: Thomas Meighan himself in a George Ade story.

Pretty Ladies: a clever portrayal of life in the Follies.

The Homemaker: Alice Joyce and Clive Brooks in a sincere study of marriage and economics.

The Goose Woman: a weird study of a prima donna with an especially remarkable performance by Louise Dresser.

A Kiss in the Dark: sophisticated satire with Adolphe Menjou.

Cyrano de Bergerac: admirably done by a French company with Pierre Magnier.

The Wizard of Oz: a delightful picture for children.

Friendly Enemies: Weber and Fields with tears and smiles.

Hell's Highroad: Cecil B. DeMille's first comedy production as an independent.

I'll Show You the Town: a lively farce based on Elmer Davis' novel.

Drusilla with a Million: a tearful story with Mary Carr.

The Last Edition: Emory Johnson popularizes the newspaper.

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Associate Editor, The Macmillan Company

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DIVISION XXXIX
ACADEMIC EDUCATION

MODERN METHODS IN EDUCATION

By Robert G. Jones

Superintendent of Schools, Cleveland

Society and Education.—We have in this year of our Lord 1925 rubbed our eyes as never before in recent years in America and said "No matter what comfort we have enjoyed in espousing democracy, we have purchased this comfort at a sacrifice—the sacrifice of indulging ourselves in the belief that all are born free and equal mentally, and that all can, therefore, aspire to the maximum powers to achieve."

We have been committed to mass education in the face of a vast peasant immigration, in the face of biology, in the face of history, in the face of experience. With a dilution of advanced, abstract education designed for select minds of worth we have endeavored to educate a mass less endowed with power to achieve and with so much less of the hereditary background so essential to character.

We have advanced in the differentiation of abilities on the one point scale of mental strength. Dr. Bird T. Baldwin is just now writing a report on a five point scale of appraisal, to wit: intellect, social worth, physical worth, achievement and moral worth. Selection and classification of qualities which contribute to successful living are passing from the rule of thumb to the scientific stage less rapidly than the differentiation of abilities has advanced. This year has developed more anxiety for a curriculum to fit these differentiated abilities than ever heretofore, but textbooks are rarely available for either the extreme lower or higher levels of learning power.

The public balks at a preparatory or private school because it wants its children to grow up in the hurly-burly of general school life, in contrast to a sequestered group of boys or girls which may be gathered into some quiet school nook even under capable teachers. They do not quite like the composite of the groups—some sent there to get the atmosphere of better scholarship; others there to get them out of home influences; still others for disciplinary reasons. Boards of Education are trying to reduce costs and at the same time maintain secondary education on an even keel, but it is a hard job to find, keep and develop in high schools, men of the kind one would have, at present salaries. There are not enough good ones to go around. In secondary education there seems no great advance this year. We have sought, through organization, new textbooks, devices, expedients, athletics and fine buildings to make education, but these are neither the warp nor the woof of it. It requires men and women of ripe scholarship to command the respect of youth fourteen to eighteen years of age.

Compulsory Education.—The compulsory education laws have in some states moved up the age limit to eighteen with a saving clause "at sixteen if employed." That this is a movement of doubtful value is indicated by ability tests. The presumption is that vocational or trade schools will provide for this over-age group, but the trade schools are not yet developed, and communities are not in funds to increase expenditures for this type of education, particularly for capital outlay.

Junior High Schools.—Junior High Schools are increasing in tremendous numbers—faster than teachers are trained to manage them, and surely faster than managers are capable of understanding them and projecting work for youth of this age. The teaching staff is composed of former seventh and eighth grade teachers, many of whom have to their credit but two years of training beyond the high school, supplemented by considerable experience of more or less worth, depending upon their environment and direction.

When poor teaching and meagre preparation have failed to carry inspiration holding quality in the seventh, eighth and ninth years, the curriculum has been "jazzed up" with concrete types of instruction for so-called exploratory purposes. This is of questionable value, for the good reason that youth 12, 13 and 14 years of age rarely manifest deep interest in what their future work will be. In short, they are too young to decide such questions. Boys at this age are all quite interested in mechanical affairs and might easily be diagnosed early for engineering, when maturity might quite contradict the decision.

Education of Special Classes.—Differentiation on the score of abilities has in the main taken the form of provision for special classes. Since the states have been slow to accommodate all mental defectives—that is the group having a mentality of about I. Q. 70 or below—communities have sorted out many of these into special classes offering at least 50 per cent. of handwork. The advantage is twofold; it relieves the regular classes and offers work better suited to the low mentalities.

Some provision is also being made for classes of gifted children. The discoveries are interesting and stimulating. It is demonstrated that these pupils are not far advanced beyond other children at the outset, and usually they have not developed studious habits because they have never had competition. It is equally amazing to observe what a volume of work these pupils can accomplish when put upon their "mettle."

Delinquents.—Some advancement is being made in treating delinquents, boys especially. No doubt the desire to prevent crime as much as the desire to render justice to the boys, has stimulated the care for this group on the part of the community. Prevocational trade studies and character guidance through personal contact, music, play and applied arts have contributed much to the improvement of such groups.

The groups of non-conformist girls about sixteen years of age present an equally engaging problem, but curricular material suitable for such groups is all too limited at present, nor have teachers been trained for this branch of service. Coöperative relations with industrial and commercial concerns are, however, under way since considerable material is now available on job analysis with a view to providing work suitable for girls.

Educational Theory.—Educational theorists have been pointing out for many years that society is interested in learning how children behave in their own groups, among their fellows and in situations which natural association with their elders thrust upon them, and later how they will act as men among men. They have indicated that present practice in the schools might be interpreted to mean that school administrators, and even some teachers, are interested primarily in classroom behavior, as leading to the highly specialized behavior known as "passing examinations." They have also delved into what pupils ought to learn and how they ought to learn it. In the first inquiry, they all agree with society; in the second, they have rediscovered the importance of interest as an element in producing effort.

As a result, we are busy rewriting our courses of study in terms of pupil interests and desired changes in their attitudes, habits, knowledges, skills and character. In the elementary field ten committees, each assigned to a special subject, are working upon a revision of the courses in these subjects. In the junior and senior high school field the reorganization of the social studies has been much advanced.

Another new theory is that many childish experiences, some unique but many quite commonplace, affect seriously the attitude of children toward desirable habits and facilitate or hinder their learning. To solve the problems created by this situation just now recognized by scientists in education, it would seem that the educational psychologist must move over and invite to a seat by his side the educational psychiatrist, and that both must be aided by medical and social workers. The children in one elementary school in Cleveland are now undergoing a thorough examination upon the more subtle behavior problems with a view to detection of evils and correction. Careful scientific studies of psychiatric service are under way at Teachers' College, Columbia University, and at the University of Minnesota.

Trade Education.—Trade extension education is sharing more attention as funds become available and as adjustments are made between employers and the unions. Such adjustments are rather easily made at present, since the building trades are short of skilled workmen. The employers pay wages for the full day and send the employee to the trade school for one day each two weeks. Successful classes are being conducted in bricklaying, plumbing, interior decorating, house painting, carpentry, electricity, automobile mechanics and in one instance classes have been organized for telegraph messenger boys. Some trade schools are under way for general mechanics, and no doubt the number will be steadily increased if general prosperity continues and the demand for skilled labor does not slacken. The unions may leave apprenticeship instruction to the public schools in a larger measure if the schools refrain from discussion of labor problems, and stick to the subject of trade education and such supplementary academic training as contributes to the efficiency and social worth of the student.

Adult education is decidedly on the upgrade, not only in trade subjects, but in the various fields of general culture, especially in directed reading, through courses offered by the public libraries.

The shorter work day, increased standards of efficiency in commerce and industry, higher living costs, desire for the next stage of social recognition, and a desire for knowledge for personal satisfaction, all contribute to cause this demand for adult education. The question before us is: How far shall free public education go? There is some protest against advancing tax rates, but in turn one is forced to consider whether education does not increase property values and production sufficiently to warrant increased school tax assessments.

In any event, if educational opportunities are sufficiently desired the public school building will, no doubt, be opened on a tuition basis. The Y.M.C.A.'s and the colleges will continue their schools on a tuition basis, and what the public wants it will purchase either directly or indirectly. Probably no more striking evidence is at hand of adults' desire for education than the enrollment in private schools and in correspondence schools. The important fact remains—that the demand is present.

Teachers' Training.—The tendency to change the title "normal school" to "school of education" may, at first thought, seem pretentious which, no doubt, it is in many instances; but the change in title also connotes a change in the length of courses from to three or four years. While this is true of larger urban centers, it will be observed that in rural districts the advent of centralized schools has brought in its wake higher standards. The expansion of training for professional school work is not as yet keeping pace with or meeting the demand for suitable teachers. This is due, in part, to prosperity in trades which offer some advantages to talent that a circumscribed standard school schedule will not permit. The day of the merit schedule for schools is not here, but some plan for greater flexibility must necessarily be offered soon. Altogether the outlook for the year is the best in history.

The Public's Interest in Public Education.—The parent-teacher organizations, now country-wide, are increasing in numbers and interest. One should make haste to add that the attitude of this group is constructive and the organizations are inclined to study the ways and means of school work and contribute to its success.

Less adverse criticism is in evidence than ever existed before. There is no more effective agency than the parent-teachers' organization to promote the welfare of public schools. Its value has been tested in the selection of substantial members for boards of education and in support of tax and bond measures in the general elections. This represents more than a temporary local assistance; it augurs well for our democracy and we may express the hope that the keen interest in educational affairs will spread to the betterment of municipal management.

IMMIGRANT EDUCATION IN THE UNITED STATES

By Helen Hart

Head Worker, East Side Settlement House, New York

Transfer of Interest.—The year 1925 marks a definite transition in the history of the so-called Americanization movement, at least so far as its educational aspect is concerned. Immigrant education has finally ceased to be considered patriotic propaganda and has taken its place as a part of a larger movement for "Adult Education." In the National Education Association the Department of Immigrant Education, which three years before had taken over most of the functions of the Inter-State Council on Immigrant Education, was definitely reorganized at the Indianapolis meeting in June as the Department of Adult Education, and its program expanded to include the anti-illiteracy campaigns being conducted in many states, as well as the movement for "Workers' Education for Leisure."

In the Federal Bureau of Education, which during the war and for a short time thereafter had a "Director of Americanization," the position of "Specialist in Adult Education" was created in May. Several state departments of immigrant education have been reorganized to take over the responsibility for the teaching of native-born illiterates; and in states where the work is being newly organized it is often made a part of the department handling vocational education as well.

This tendency on the part of "Americanization" to lose its separate identity is due in part to a reaction from the spirit of wartime propaganda unwisely exploited by a few leaders in the movement, and in part to changing conditions brought about by the restriction of immigration. Far-sighted leaders in the movement have realized that in order to protect it from the rising tide of suspicion and intolerance now evident in many parts of the country toward immigrant groups it should be made a part of a larger educational program; they are looking forward, too, to the time when, under restricted immigration laws, most of the foreign-born residents in their states will rapidly acquire a working knowledge of English and will be ready to join with their native-born neighbors in the study of cultural and vocational subjects. In states like California, Connecticut, Delaware, Massachusetts, Pennsylvania and others whch have retained the leadership of educators who have made out-standing contributions to this highly specialized field, the tendency to relate immigrant education to the larger field of adult education can mean nothing but gain. Where, however, as has happened in many states, such classes are placed under the general supervision of schoolmen with no adequate conception of the special problems of immigrant education or of the uniquely efficient methods that have been developed of recent years to deal with them, a reversion to the old conditions of apathy on the part of the schools and discouragement on the part of the immigrant pupils is already evident.

Education for Citizenship.—Another general tendency, caused largely by the new immigration law, which gives preference to the relatives of naturalized citizens, is the increased emphasis on education for citizenship and the increased demand for such education, especially among immigrant women. The naturalization of women has also been stimulated, unfortunately, by widows' pension laws. Educational agencies which are eager to give their pupils a genuine preparation for citizenship find it extremely difficult to give adequate training to women who are already handicapped by the necessity of earning for their children during the day and caring for them in the evening.

Differentiation of Treatment.—A third development pointed out by all the leaders in this field, is the need of adapting courses of study to new types of immigrants now entering the country, particularly to the middle class German with high-school or university education, who is capable of extremely rapid advancement, given efficient language teaching, and who cannot begin to make his skilled contribution to America until he has this. It has been found that where special instruction could be given to these pupils, apart from the peasant groups whose early education has been very limited, great gains have resulted.

National Developments.—In May, 1925, Dr. L. E. Alderman, of Oregon, was appointed "Specialist in Adult Education" in the Federal Bureau of Education. Although the field covered by this office is large, there is a general gratification at the renewal of federal leadership in immigrant education and a hope that it will make possible a better exchange of experience between the states. Shortly before Dr. Alderman's appointment, Mr. Charles W. Herlihy, Director of Alien Education for the State of Massachusetts, prepared a report on state activities, at the request of the Commissioner of Education. It is understood that this report will shortly be available in printed form.

The educational activities of the Naturalization Bureau, in the Department of Labor, have been somewhat curtailed since the beginning of the year, but the Bureau continues to issue copies of its textbooks in English and Citizenship to aliens who have declared their intention of becoming citizens. The revised editions of these textbooks have been prepared by experts and are exceedingly useful.

Present Status.—Because of the merging of Americanization work with other forms of adult education it is impossible to give a clear picture of the progress now being made in the education of non-English-speaking residents as apart from native illiterates. The combined figures, however, are exceedingly interesting. The 1920 census shows that of about thirteen and a half million foreign-born persons in the United States, about one and a half million could not speak the English language; about one million eight hundred thousand were illiterate. In addition to these foreign-born illiterates were over three million native illiterates. Answers to Mr. Herlihy's questionnaire and other official figures and estimates compiled more recently indicate that between 325,000 and 350,000 are now enrolled in classes out of perhaps five and a half million who are illiterate or non-English-speaking, or both. In nine states having a non-English-speaking population of from 10,000 to 172,000 (Colorado, Illinois, Indiana, Kansas, Michigan, Missouri, New Jersey, New Mexico and West Virginia) there appears to be no state leadership in immigrant education and no figures as to enrollment in local classes are available.

Statistics.—Following is a summary of reports from 18 other states, in which the problem of non-English-speaking and illiterate foreign-born residents is important and is receiving definite attention from state educational authorities. It is interesting to note how uneven is the relation between the seriousness of the problem and the work being done, even in these states.

	Non-English-Speaking	Foreign-Born Illiterates	Native Illiterates	Communities Having Adult Classes	Pupils Enrolled
Arizona	36,352	19,291	3,571	5	160
California	69,570	69,768	10,326	103	39,908
Connecticut	38,068	63,131	4,005	42	11,481
Delaware	2,733	3,373	7,127	15	1,504
District of Columbia	779	1,728	8,693	...	971
Maine	10,333	11,604	8,460	18	2,068
Massachusetts	96,426	135,720	10,345	104	30,000
Minnesota	28,311	26,242	6,196	40	10,679
New Hampshire	11,339	13,746	2,006	17	3,060
New York	290,200	389,603	33,438	140	102,384
North Dakota	10,189	7,238	1,323	22	2,283
Ohio	81,161	84,387	46,441	50	33,000
Pennsylvania	162,240	258,812	53,515	65	18,562
Rhode Island	21,620	28,169	3,094	17	2,685
Utah	2,303	3,504	984	4	1,123
Washington	7,796	11,630	2,624	16	3,777
Wisconsin	44,481	38,359	10,631	47	2,806
Wyoming	2,003	2,233	487	34	912

State and City Programs.—There are nine or more states in which a definite program of immigrant education has been developed steadily under expert leadership for several years. Almost all the important gains made in the organization and technique of immigrant education are to be traced to these state programs, rather than to city school systems in which supervisors seldom have the freedom to develop new methods. Most of these state programs are based upon the principle of state aid to local districts in the maintenance of classes. The simplest form of state aid and that most commonly found is the "50-50 plan," under which the state agrees to reimburse local communities each year for one-half the cost of instruction to adult aliens in English and citizenship. Under this plan in Massachusetts the number of immigrants in such classes increased from three thousand in 1919 to thirty-two thousand in 1924; 40 communities had full-time supervisors in 1925 and 50 had part-time supervisors. In Maine, the state pays two-thirds the cost of such classes. In New York, state reimbursement to local communities consists simply in the payment of one-half of teachers' salaries up to $1,000; under this law over 100 communities have appointed supervisors or teachers in charge of the work. In California, state reimbursement to local communities is based on attendance in English and citizenship classes, a bonus of $2,700 being granted by the state and county to each local district on its first thirty units of average attendance. This makes possible in many country communities the employment of full-time supervisors, who make union high-schools their headquarters and establish classes in neighboring district schools. In Ohio, which has no plan of state aid, a large number of cities have tried the experiment of charging the pupils for part or all of the cost of instruction; Cleveland charged each pupil a $2 fee for the course of 36 sessions, thus raising $14,000 in addition to the $65,000 appropriated by the School board. The Citizens Bureau of Cleveland, a private agency doing exceptionally good work in naturalization education and personal service to immigrants, reports that during 1924 tuition fees in its classes showed a clear profit of more than $2,700 which was applied on other services rendered, but adds that this profit involved intolerable crowding in classes, and that a change in policy in the direction of making these classes only self-supporting has been adopted in 1925. In the District of Columbia, the "Americanization School Association," made up largely of graduates of the schools, raised enough money to pay for a summer session. In a few states, in most of which the native illiteracy problem overshadows the need for immigrant education, state supervisors of adult classes are still working toward getting them financed by private individuals of means, or by patriotic societies.

The importance of adapting schedules and meeting places to the special needs of immigrant pupils has been increasingly recognized by progressive workers. The District of Columbia, for example, has day classes for unemployed men, night-workers and women, with kindergarten care for small children while their mothers study.

Delaware has day classes also and home-classes for mothers and will establish a class anywhere where ten or more immigrants wish to learn. This is in marked contrast to New York City, which still insists upon a minimum of thirty pupils to a class, in spite of renewed protests by civic agencies.

Work of Private Agencies.—In states with adequate programs of immigrant education the tendency is more and more for private agencies to work for the increased efficiency of public classes, rather than to duplicate them. American Legion posts and Rotary Clubs in several states have taken an active part in recruiting pupils. Organizations like the Citizens' Bureau of Cleveland and the League of Foreign-Born Citizens of New York City maintain special classes for would-be citizens. The expensive problem of reaching mothers who cannot leave their immediate neighborhoods has been successfully dealt with in many cities by International Institutes of the Y. W. C. A., in Delaware by the Service Citizens (a private foundation) and in New York by the Education Committee for Non-English-Speaking Women; some of the New York Settlements have specialized in teaching mothers in their own homes. The Council on Immigrant Education, New York City, through studies of schools, stimulation of teachers and the setting-forth of immigrants' points of view, has made a definitely helpful contribution to this city's exceedingly difficult problem.

HEALTH EDUCATION

BY CHARLES H. KEENE, M. D.

DIRECTOR OF PHYSICAL EDUCATION, UNIVERSITY OF BUFFALO

Concepts of Health Education.—The interest in this subject has increased greatly since 1919. At least two concepts of the meaning of the term are rather common. The first of these includes under this title all the factors relating to health and health teaching in the schools and universities. The general scope of the school health program is comprehensively discussed in the Report of the Advisory Committee on Health Education of the National Child Health Council. (U. S. Bureau of Education, *School Health Studies No. 1, 1923*, Wash.)

The second concept confines the use of the term Health Education to that part of the program which relates directly to the teaching of hygiene—a better name for which would seem to be "health training and instruction." In this field the great emphasis has been upon the foundation of good health habits—to teach how to live healthfully. This cannot be done without the regular, routine practice of acts which have a definite good effect on the health of the individual and of the community. A few states—notably Connecticut and Pennsylvania—working through the state departments of Education, and several cities have issued definite graded courses of study in this field. In addition to this, the National Tuberculosis Association has drawn up a detailed graded plan. (Dansdill, *Health Training in Schools*, Nat. Tuberculosis Assoc.) The best and most effective publication has been the report of the Joint Committee on Health Problems in Education of the National Education Association and of the American Medical Association. (*Health Education—A Program for*

Public Schools and Teacher Training Institutions. Wash., Nat. Educ. Assoc.) Most helpful annual conferences on "Health Education" are being held in different sections of the country under the auspices of the American Child Health Association. (The annual report, N. Y., Am. Child Health Assoc.)

Ventilation of Schoolrooms.—In matters relating to the sanitation of the school plant, lighting and ventilating are most to the fore. Ventilation of school buildings was thoroughly studied by the New York Commission on Ventilation. Their Report showed that the health conditions in classrooms, as shown by the sickness rate, were considerably better in those rooms ventilated by open windows and an exit duct for foul air. The conditions under these circumstances were so much better than they were in those classrooms ventilated wholly by the fan system —with windows closed—that the predilection of many health workers for the open window system of ventilating seems wholly justified. It would seem that the enormous sums spent each year in installing fan ventilating systems in public schools might well be saved. The American Public Health Association at its annual meeting, (St. Louis, Oct. 19-22, 1925) adopted a resolution condemning the fan system of ventilating school buildings, and advocating the use of the open window and exhaust duct method.

School Health Supervision.—In the field of health supervision (the medical inspection, examination, and treatment of school children), the effort is to secure more careful and effective examinations and thereby bring about a larger percentage of correction of the physical defects found. The Committee on School Health Problems of the American Public Health Association is making special efforts along this line, with a view of securing some uniform method of examining for and reporting the physical defects of school children. (See the *Report*, Am. Pub. Health Assoc.) The tendency to place this phase of education directly under the control of Boards of Education is strong. The rapid increase in the number of special classes for those pupils having physical and mental defects that are more or less permanent, the strenuousness of athletics and of other phases of physical education, the rapidly growing concept of the place of the health of teachers in the school health program, and the just dawning appreciation of the relation of all these to mental hygiene, make such a definite placing of responsibility in the hands of educators essential. *U. S. Bureau of Education, Educational Hygiene: Bulletin*, 1923, No. 33.

Physical Education. — The large percentage of correctible physical defects found in young men at the time of the World War stimulated a lively increase in interest in physical education. While in 1919 only fifteen states had laws making compulsory the teaching of physical education, at the present time thirty-two states have such laws. Fifteen states require full-time supervisors of physical education, working under the auspices of the State Departments of Education. The tendency is away from formal gymnastics and toward play and team games. The present ideal is a type of physical education which shall reach every pupil every day.

Athletics of the interscholastic and intercollegiate type is being seriously criticised and its value questioned. The dollar-making phase of these contests has become exceedingly prominent. Enormous sums are being spent for stadiums in connection both with schools and with universities. This has gone to such an extreme that, in education at least, the present time is likely to become known as the "era of stadium building." Efforts to finance these have made winning a commercial asset, and the whole spirit of competition tends to become professionalized.

In the universities there is a strong trend toward a consolidation of all the activities relating to the physical welfare of the students. This means a combination, under one head, of the health service, the physical education activities, and all athletics. With our present bruising, tearing football enjoying such a vogue, the care of athletic injuries alone has become a complicated and expensive problem. Consolidation and greater coördination are the trend.

In general, the main effort in physical education has been to work out some scheme which shall offer opportunity and create desire for every pupil and student to exercise properly each day, and, with this, to build up some system whereby the effectiveness of the training may be tested. There are several ways of doing this. There are the motor ability tests sent out by a special committee of the American Physical Education Association (*Am. Physical Educ. Rev.*, Dec. 1924, p. 579.) Another plan is that of combining physical and scholastic tests (*Ibid*, Oct. 1924, p. 447.) A more complete plan is that used in the public schools of Philadelphia, where accomplishments in physical power, in health habits, coöperation in securing removal of physical defects, scholarship, and sportsmanship are the bases on which judgment rests. (*Mind and Body*, May 1925, p. 529.)

Sex Education.—In sex education the effort is to correlate more closely with the rest of the health teaching and training. The establishment of special clinics by municipal and state health departments has been a forward step. The United States Public Health Service, through its *Social Pathology,* issued to aid coöperative work with the state health departments, has rendered a distinct service to the problems involved in education relating to the control of venereal disease.

So far as sex education in the public schools is concerned, its progress has been held in check, partly by the attitude of certain religious groups which fear that it may lead into the field of birth control, partly by the attitude of the public, especially the parents; and partly by the attitude of the teachers. Many of these oppose it, both because of their feeling that they cannot take on additional burdens, and because they dread to try to teach a subject concerning the proper subject content and pedagogical method of which they know so little. The present effort is to correlate quite definitely this subject with the teaching of other school subjects, particularly biology and physical education. The methods advised are discussed in detail in a publication put out jointly by the United States Public Health Service and Bureau of Education. *High Schools and Sex Education* (U. S. Public Health Service, 1922).

At the present time, the true need in this field is to secure adequate instruction in the normal schools and in other teacher training institutions. It is essential that a generation of teachers be trained in the fundamentals of biology and the relations of sex to mental and physical health before proper instruction in sex education can be given safely and sanely in the public school. Always, such instruction should be given by members of the regular faculty of the normal school in question—not by itinerant lecturers.

The activites of the Interdepartmental Social Hygiene Board (*A. Y. B. 1919*, p. 806) have been transferred to the United States Bureau of Education and to the United States Public Health Service, and the Board itself has been discontinued.

The whole educational field in health is being profoundly influenced by popular literature, particularly the health articles appearing in such periodicals as *The Nation's Health* (Modern Hospital Publishing Co., Chicago), and *Hygeia* (The American Medical Association, Chicago). The health of college students is greatly affected by the deliberations and reports of the American Students Health Association. The outstanding publication of the year in the health education field is probably, *A Health Survey of 86 Cities,* (N. Y., Am. Child Health Assoc., Research Division).

PRIMARY AND GRADE SCHOOLS

By John K. Norton

National Education Association

Below are some of the outstanding educational developments of 1925 affecting elementary schools. Many of these did not begin in 1925. Progress in the directions indicated, however, were sufficiently distinctive to deserve emphasis. Limited space precludes detailed illustration of the developments cited.

Curriculum Revision.—The teachers of the nation are revising the elementary school curriculum. During 1925, 300 cities enrolled in the Cooperative plan for curriculum revision of the National Education Association. This movement has come to stay. It replaces the sporadic attempts at curriculum revision characteristic of the past. Many communities are creating permanent organizations responsible for continuous study and revision of their "courses of study." Among a few of the larger phases of this movement are:—

Emphasis on Character and Health Education.—The school is placing emphasis on training for character more than ever before. New courses attempt to make every subject one which contributes to moral development. A Committee of the National Education Association completed a nation-wide survey of this movement.

Physical as well as intellectual and moral development is being given by progressive school systems. The report issued by the joint committee of the National Education Association and the American Medical Association had a stimulating influence on this movement.

Text Books.—The text books of the past, dependent upon the reputation of their authors for acceptance, are giving way to those based upon scientific knowledge growing out of research.

Study of the Child.—Scientific study of the laws that govern the development of children's mental, physical and emotional life is leading to more skillful teaching. Studies of the pre-school child such as that of Bird Baldwin at Iowa State University have proceeded to the place where they promise fundamental revision of our knowledge of the effect of the pre-school age upon later development. The old lock-step system of classifying children rapidly gave way before more flexible methods of classification, based upon better knowledge of individual differences. Homogeneous grouping, and the Dalton and Winnetka plans, looked upon with increasing favor, contributed much to this movement.

Reorganization of School Units.—An important educational commission was created to determine the particular school organization that will function most effectively in educating children. The kindergarten is coming to be looked upon as an integral part of the elementary school. Better results both in the kindergarten and in the early primary grades are being obtained as a result. The Platoon School plan of elementary school organization is being adopted in many cities. It attempts to set up a threefold program of education—work, study and play. The Junior High School is replacing the old 8-4-4 type of organization. It calls for a 6-3-3 plan, that is, a six-year elementary school, three-year junior high school, and a three-year senior high school.

Better Teachers.—New curricula, plans of classification and organization in themselves accomplish little. They are valueless unless a capable teacher translates them into the lives of children. This fact is expressed as follows. The movement to bring all teachers up to at least a minimum standard of training proceeded with increased vigor during 1925. In Missouri 16,000 teachers enrolled in summer school courses. The movement for better trained teachers apparently is not a transient one. Accompanying the increased demands made of teachers, salary schedules are being lifted to a professional level.

This movement is general. In Chicago a committee of laymen brought in a report recommending a scale of teacher compensation far above schedules now in operation. The foundation is being laid upon which a real teaching *profession* may be founded and developed.

New Science of Education.—For the first time there are clear indications that the results of educational investigation are reaching the rank and file of teachers. The year 1925 indicates that scientific research will have as profound influence upon educational progress in the next fifty years as the investigations which Pasteur initiated a little over a half century ago have had upon medical development.

PROGRESS OF SECONDARY EDUCATION

By Thomas W. Gosling

Superintendent of Madison (Wis.) Public Schools

New Committee.—The year 1925 has witnessed several noteworthy achievements in the field of secondary education. The most important of these resulted from the initiative of the United States Commissioner of Education in organizing a National Committee to articulate the efforts of independent organizations working in the secondary field. The North Central Association of Colleges and Secondary Schools, the National Association of Secondary-School Principals, and other similar organizations were invited to nominate representatives who would constitute a new committee to study the problems of the American high school. This body bids fair to make a contribution as distinctive as that made several years ago by the Commission on the Reorganization of Secondary Education.

Curriculum.—The most pressing problem now before high-school teachers and administrators relates to the reorganization of the curriculum. Numerous independent investigators are working upon this problem. The place of the classics in the high-school curriculum is brought again into the focus of attention by the investigation which is in the making under the auspices of an association of teachers of the classics. A thorough study of the whole status of this subject is about to be determined so far as the present investigators are concerned. The scope of the investigation has been widened by the inclusion of a trained psychologist who will apply the results of studies in psychology to the problem in question.

Entrance Requirements. — At its annual meeting in March, the North Central Association of Colleges and Secondary Schools renewed its recommendations to colleges and universities that they revise their entrance requirements in such a manner as to permit students to enter college on the basis of units of work accomplished in the tenth, eleventh, and twelfth grades. Three great universities—the University of Michigan, the University of Nebraska, and the University of Missouri—already have made the suggested adjustments. If the other colleges and universities follow the same course it will not be long before the ninth grade will be as independent of the colleges as the seventh and eighth grades already are.

The Safety First Movement.—This already has had considerable development in elementary schools and is now to reach the high school. Interest in this important subject is exemplified by the action of the National Safety Council and of the National Society for the Study of Education in forming a joint committee to publish a yearbook under the auspices of the National Society for the Study of Education on the subject of *Education in Safety.* In this yearbook considerable attention will be paid to methods of instruction in the high school.

Size of Classes.—Another important problem of high-school organization relates to the size of class. Long accepted convention has set a standard for the high school far below that which elementary schools have been obliged to accept. The increasing costs of instruction have brought forcibly to the attention of administrators the expensiveness of the small class. Realization of this situation has lead to significant investigations of the relative merits of the small class and the large class. The most important of these investigations has been reported within the year by Professor P. R. Stevenson of the Ohio State University. This report shows that although no final conclusion can be stated, the trend of the investigation is in favor of the effectiveness of the large class. If later investigations prove this conclusion to be correct, it will be possible to reduce considerably the cost of instruction in the high school. The consensus of opinion is that American secondary education is about to undergo marked reconstruction. The achievements of the year point definitely in this direction.

Bibliography. — Two significant books relating to high-school education have appeared within the year. One is by Philip W. L. Cox on *Curriculum Adjustment in the Secondary School.* The other is by Willis L. Uhl on *Principles of Secondary Education.*

COLLEGES AND UNIVERSITIES

By Frederick B. Robinson

Dean, School of Business, College of City of New York

Increased Attendance.—The remarkable increase in attendance at American colleges and universities which began before the World War continued even more strongly after the War and through the period from 1920 to 1925. While no consistently kept statistics have been issued each year by any competent body, it is safe to estimate, from evidence derived from various sources, that there are now approximately half a million students in colleges, universities and professional schools in the United States. This great increase is partly due to the development of the public high schools throughout the country. The number of boys and girls completing high school courses of study which qualify them for college entrance is ever increasing, and state laws which require attendance at school during the years of high school age are becoming more and more numerous. But this is not the only reason for the increase in college students; it is also due to a genuine appreciation of the importance of higher education by many people who did not have the "college tradition" in the family.

During this period there has been a very conscious examination, by faculties and trustees, of the real functions of institutions of higher learning in the community, and various movements for improving the services of colleges have been inaugurated or have made considerable progress. Possibly the very increase in student attendance has made more necessary the solution of some of these problems.

Entrance Requirements.—The first is that of selecting students. While some institutions have attempted to meet the problem of overwhelming numbers by exclusion through the raising of college entrance standards, the vast majority have been setting their standards on a continually higher plane for purely educational reasons. The wide variation in the number of credits required for entrance which formerly existed has gradually disappeared and very few institutions accept students with less than the standard fifteen college-entrance credits. Coupled with this fairly uniform quantitative requirement, there have been worked out more flexible and satisfactory adjustments of the details of entrance subjects with the offerings of high schools; so the students from the public high schools can more easily go into the colleges.

Intelligence Tests.—During these five years, the use of intelligence tests has been gradually developed in technique and the number of institutions using them has increased. Some colleges had hoped to use intelligence tests as the basis of selecting students who would give promise of actually completing their college courses. It was felt that this would be a means of saving the waste which arises through incomplete courses. Others thought that the intelligence test would serve in place of high school grades or entrance examinations of the traditional sort. At present the tendency is to use intelligence tests as a supplementary means of grading students on entrance. The data obtained is preserved and checked with the college record subsequently made. It is hoped that, after a number of years, sufficient correlation material will be secured so as to enable conclusions to be reached concerning the application and validity of the tests.

Accommodations.—The increase in number of students has also made the various institutions study more carefully physical accommodations. Considerable progress has been made in college architecture, the arrangement of college rooms and laboratories and the oganization of facilities in general. Some institutions located in cities have been making experiments in the direction of tall "skyscraper" buildings on relatively small space, instead of low buildings spread out on an ample campus.

Teachers.—The selection of teachers has also become a very difficult matter. In order to avoid classes too large for good teaching, institutions have been forced to increase their staffs very rapidly. Obviously the problem of teacher training and teacher selection for higher education has been acute. Institutions which are favorably located have solved this problem to a certain extent by engaging as teachers on part time persons who are working in the various professions related to the subjects involved.

Programs.—A most significant development has been increased acceptance of the proposition that a college course of study is not merely a traditional grouping of subjects, but, rather, an intellectual training which bears a definite relation to the changing conditions of life. Curricula have been under constant scrutiny and there have been revaluations of various subjects in the curricula. College faculties are studying life pursuits of their various graduates and trying to arrange curricula which will have very definite relationships to the functions later to be performed by graduates. There is now a tendency to stiffen up the first two years of college courses and to permit of rational specialization in the last two. It is expected that in the Freshman and Sophomore years the disciplinary and foundational training begun in the high shcools should be completed. This is the work of junior college grade. Specialization in the Junior and Senior years becomes very definite for students who are inclined in certain professional or vocational directions.

Honors Courses.—For the general cultural students of superior ability "honors" courses have been suggested. During the last five years, such courses have been introduced in many institutions. Students in honors courses are not required to attend formal lectures and classroom exercises according to schedule, but are allowed a wider range of freedom for original work in certain general fields approved by the faculty. Their seminars, essays and reports are supervised more in accordance with the English tutorial system than the American method of recitation and lecture. These courses are expected to develop the student as an individual scholar of initiative and resource.

Groupings.—Methods of teaching related subjects are receiving more and more attention in institutions of higher learning. There is a tendency to break down the artificial barriers between departments, so that the social sciences and history are taught more as a unit, the languages are more completely inter-related, and the scientific subjects and mathematics are taught more as functioning groups than as separate entities.

International Education.—American colleges and universities have, since the war, shown increased interest in international education. The American Council on Education, which was organized in 1917, has gradually become a general clearing house for higher education in the United States, It has shown especial interest in international affairs. The Council now has an Associate Director who devotes his whole time to international affairs, the gathering of information concerning opportunities for study in all countries, the promoting of exchange of students and the checking up of credits or scholastic equivalents in all countries. At present the American University Unions in London and Paris, formed in 1917, are operated as a division of the American Council. The Institute for International Education, established in 1919, is also interlocked with the Council, and practically all matters of international education are guided directly or indirectly by the American Council. A large number of graduate students and professors are exchanged. During the last two years a new move was inaugurated in the direction of having undergraduates spend their Junior years abroad, with full credit toward their American degrees at home.

Gifts.—During the last five years, gifts on an unprecedented scale have been showered upon endowed institutions and the appropriations made by states and cities to publicly supported institutions have been steadily increased. This has been fortunate, for professional salaries were in danger of falling far below the proper and necessary living level. Additional funds have made salary increases possible and have saved many to the profession of teaching, but professional incomes are now relatively lower than they were twenty to thirty years ago.

Professional Schools.—In the field of university development, the most noteworthy advances have been made in the fields of medicine, law and business. The standards and equipment of medical schools have increased in a most satisfactory way. Furthermore, new facilities have been provided. Standards of admission to law schools, and the requirements for graduation have been steadily improving, largely due to the activities of the legal profession itself. While various new schools, such as those in journalism, arts and education, have been developed in different institutions, the largest developments seems to have been in the field of business. American business is now so complex and calls for so thoroughly a trained man, that universities have, during the last five years, done much in the way of providing additional undergraduate and graduate instruction in business.

Urban Institutions. — Cities are paying more attention to adult education. There are now over thirty-eight colleges and universities of high standard located in large cities which are offering at night not merely the standard courses in various schools available for day students, but also a wide range of special courses, short courses, lectures and other educational advantages to persons who are employed by day. This purposeful program in the field of adult education is considered by many the most promising educational sign in America at this time. This year the Bureau of Education at Washington, for the first time, established the office of Specialist in Adult Education.

Federal Organization.—During the last five years, colleges and universities have been interested in the movement to change the Bureau of Education at Washington into a federal department with a Secretary at its head who will have a place in the cabinet. The American Council on Education, which, more than any other single agency expresses the general opinion of colleges and universities throughout the United States, has expressed itself as favoring such a Department of Education. But it has not supported any of the various measures that have been drawn up and presented to Congress. No measure has yet been drawn up which has not received bitter opposition, either because of large appropriations which were included in its provision or because of some of the powers and duties assigned to the new department.

PROFESSIONAL SCHOOLS

By Arthur H. Daniels
Dean of Graduate School, University of Illinois

Dentistry.—The significance in dentistry of a fuller introduction of the academic spirit in professional schools means that the subject is making its place more secure as a profession rather than an occupation or mechanical trade. The two leading factors in this movement have been the connection of dental schools with universities and the requirement of some college work. Not many years ago the majority of the dental schools of the United States were privately owned and administered. Now three-fourths of them are either organized parts of universities or are in process of organization under university control and management. Closely related to this fact has been the requirement of one year of college work. In 1925 a number of university dental schools voted to require sixty semester hours of pre-dental training for admission to the dental curriculum. In 1926 this will be one of the Dental Educational Council's minimum requirements for a Class A rating.

An outstanding feature of the year has been the organization of graduate work. Graduate courses in orthodontia, oral surgery and other specialties which meet the standards of the best graduate schools have been established in several of the leading schools. Research in these branches, together with the development of children's clinics promises important advances in dentistry as a mode of health service. Children's clinics afford the necessary training for dentists who are prepared to practice children's dentistry. Of the importance of this branch of dentistry, Dean Moorehead of the College of Dentistry, of the University of Illinois writes, "The proper care of the mouth of the child by qualified specialists will prevent much of the dental trouble of adult life, not only by training the child in the care of the mouth and teeth, but in the preservation of the deciduous teeth in a state of health which permits the permanent teeth to come into a wholesome territory."

Law.—Perhaps the most significant trend in the development of the law schools of the country is manifested in the number of those which have increased the amount of preliminary college work as an admission requirement. In 1921, the number of full-time law schools—schools in which students devote substantially all their working time to their studies—was thirty-one. In 1925 this number was increased to sixty-five. Twelve full-time schools require more than five years of study after the high school to complete the course. The requirement of at least two years of study in college was made a condition of membership in the Association of American Law Schools after September 1, 1925. This Association, together with the American Bar Association with its "Council on Legal Education and Admissions to the Bar," have been important influences in the movement to increase the amount of preliminary college work.

The influence of this movement is also seen in state legislation. The state of West Virginia has adopted a requirement for all candidates for admission to the bar in that state of two years of college work, or their equivalent, followed by three years of law-school study. In Illinois there has gone into force the requirement of one year of college work, or its equivalent, prior to the beginning of the candidate's law study. And the announcement has been made that applicants in Illinois beginning their law studies after July 1, 1926, must present the equivalent of two years of college work. The states of West Virginia and Illinois, together with Kansas, which recently adopted a two year requirement, are the only ones which have as yet approximated the recommendations of the American Association.

Medicine.—Several of the best established medical schools are well equipped for scientific research and have taken up advanced work in the spirit that has manifested itself in the development of graduate work in the leading universities of the country. Epoch-making discoveries—of insulin and more recently of the cause of scarlet fever—have given a marked impetus to investigation in the medical sciences. It would seem as if the growth of interest in this line of medical study has been the occasion for alarm in the minds of some physicians and laymen lest our medical schools devote too many of their energies and resources in training specialists to the neglect of general practitioners. And closely connected with this is the claim that a serious shortage of physicians now exists especially in the rural districts of the United States. A survey conducted under the auspices of the General Medical Board of the Rockefeller Foundation does not support this claim. Fortunately there are leaders in medical education who are strong advocates of research and are equally emphatic in advocating the training that tends to make the physician a careful student of the patient. They do not regard training in research as valuable to the specialist only. In the words of an eminent English physician, "If every student became an investigator and discoverer, the science and art of medicine would be saved from perfunctory workmanship."

A decided trend in the field of medicine is the attention that is being given to the prevention of disease. A striking illustration of this is seen in the plan to develop Tropical Medicine in New Orleans. It is entirely a University development. Dr. Aldo Castellani, the eminent Italian authority on tropical diseases, has recently arrived in this country to assume the headship of the Department of Tropical Medicine in the School of Medicine of Tulane University, and a full professorship in the subject. The favorable location for this enterprise and its inauguration at this time are highly significant from the standpoint of needed improvement of hygienic conditions in southern parts of this country where extensive migrations are taking place. Much is to be expected from this movement.

TRAINING AND TENURE OF TEACHERS

By Harry S. Ganders
Professor at the Colorado State Teachers College

TEACHERS' TENURE

Reasons for sound tenure laws are: to decrease teacher turnover, to stabilize the profession, to protect teachers from unfair dismissals, to provide for dismissals of incompetents, to encourage professional growth, and make the profession more attractive.

Information.—The facts pertaining to teacher tenure in the public schools of the United States were secured during the year 1924 by the N. E. A. Committee of One Hundred—Fred M. Hunter, Chairman. Data was secured from state superintendents, state-wide surveys by teachers' associations, and by the U. S. Bureau of Education. Turnover ranges from 4% to 47% with an average of 16% for the nation. Rural turnover within states is as high as 68%. The average tenure for superintendents is three years. The policy of hiring and firing at will still prevails.

The fact that Germany, Denmark, Switzerland, Netherlands, Finland, Norway, Sweden, Great Britain, and France have tenure laws is being used as an argument in favor of teacher tenure in this country.

Legislation.—In 1925, four states —California, New York, New Jersey, and Montana—have tenure laws of practically state-wide application. In Colorado, Illinois, Louisiana, Oregon, and Wisconsin the law applies only to certain large cities while in Maryland and Massachusetts only Baltimore and Boston are excluded. Certain cities in twenty-two states now have local tenure regulations. Six states are now working for amendments to their laws, and in January, 1925, nine states—Illinois, Minnesota, Nevada, New York, Ohio, Pennsylvania, Virginia, and Washington—were waging campaigns for the enactment of tenure legislation.

In several states, courts of final jurisdiction have recently held that teachers cannot be legally dismissed because of marriage.

College Tenure.—Although tenure is supposed to be more secure for college teachers, only one-third of the professors in six representative colleges who were on the faculties in 1920-21 retained their positions in 1923-24. In 1925 the N. E. A. Committee of One Hundred studied the problems of tenure in normal schools and teachers' colleges. They reported that in 107 such institutions, teachers are appointed but for a single year. Turnover ranges from 8.5% to 12%. Teachers are given notice prior to dismissal, but seldom is legal redress sought. Practically none of the states have tenure laws pertaining to faculties of normal schools and teachers colleges.

TEACHER TRAINING

Requirements.—In addition to high school graduation, certain health and character requirements are being required for entrance to teacher training institutions. By 1925, in New York State waiting lists were established and undesirable students were not admitted.

Several states are putting into effect stringent certification laws, e.g., by 1927 no teacher can teach in Pennsylvania who does not hold the equivalent of a normal school diploma.

If two years of training above high school classifies a teacher as "trained," states have increased the percentage of trained teachers during the interim 1919 and 1925, as follows: Pennsylvania, 28% (largely due to Edmons act resulting from the leadership of Thomas E. Finegan); North Carolina, 27%; Maine, 19%; Oregon, 16%; New Hampshire, 13%; Wyoming, 15.5%; Virginia, 11%; Ohio, 19%. According to W. C. Bagley, ranking states with respect to the proportion of trained teachers in 1924-25 were: Massachusetts, 90%; Arizona, California, Rhode Island, Connecticut, New York, and New Jersey, 80% or more; Pennsylvania, New Hampshire, Oregon, 70% or more; Michigan, Maine, and Washington, 60% or more; Nevada, Delaware, Minnesota, Ohio, and Wisconsin, 55% or more.

Increased Period.—A current trend is toward a longer period as well as higher quality of training. There are twenty-eight fewer two-year normal schools now than in 1920, and more than fifty more teachers' colleges. Tendencies toward improvement of teacher training is seen in the growing emphasis upon practice teaching. At the University of Cincinnati, three years of professional training follow two years of regular A. B. college work. This year the Board of Trustees at Colorado State Teachers' College, on the recommendation of President G. W. Frasier, created the position of "Supervisor of Collegiate Instruction."

Summer Training.—The increased number of teachers enrolled in the 1925 summer sessions was phenomenal. Lack of capacity caused the Buffalo State Normal School to turn away 150 prospective students. However, during 1925, twenty-five different states were forced to train rural teachers in teacher training departments of secondary schools. The junior college is advocated by some as still another makeshift.

Associations.—"In service" training has been furthered this year by more and better teacher associations (the N. E. A. now has a membership of more than 150,000), by bonuses for summer school attendance, by development of extension departments, through teacher participation in curricular and administrative functions, through visiting days, and through the establishment of demonstration schools such as the Monument Experimental School at Trenton, New Jersey, and the Helping Teacher Schools in Maine. Systems of sabbatical leave are well established in many leading cities.

Specialization.—Each year teacher training is becoming more specialized. Teachers must now be trained for particular services at given levels (e.g., kindergarten, primary, etc.). Serious problems grow out of these demands. Just what are the particularized duties of various types of teachers and school officers working in various specialized situations must be determined through job analyses. This problem is being attacked by W. W. Charters with the aid of a subvention from the Commonwealth Fund. Other institutions are making similar studies. L. B. McMullen has just found that the average teaching load of 2500 teachers in seventy-five teacher training institutions is approximately forty hours per week.

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INTERNATIONAL EXCHANGE OF TEACHERS

BY DAVID ALLAN ROBERTSON

ASSISTANT DIRECTOR, AMERICAN COUNCIL ON EDUCATION

The large American interest in international education relations has been a discovery of 1925. The American Council on Education printed in the *Educational Record*, April 1925, a list of 115 organizations in the field. Mutual acquaintance has already led to mutual confidence and a desire for coöperation. A conference of these bodies has been called for February, 1926. Meanwhile, progress in this direction has already been made by the following bodies: the American Council on Education, which is the representative of 15 great educational associations and 195 universities and colleges; the American University Union with its offices in London and Paris; the Institute of International Education; the American Association of University Women; the Carnegie Corporation; and the Laura Spelman Rockefeller Memorial. The Council has taken over the American University Union, constituting the former Trustees of the Union as a Committee on International Relations. The Institute of International Education has become a member of the Council, its trustees are now nominated by the Council and it becomes an administrative agent of the Council. In Paris and other centers abroad there is a desire to coördinate the numerous independent American efforts in education abroad.

An American Committee on Intellectual Coöperation has been formed by Dr. R. A. Millikan, American member of the League of Nations Committee on Intellectual Coöperation, including many eminent educators and public persons.

International exchange of students and professors.—Academic reciprocity, hitherto represented only by the Rhodes Scholarships, the American Field Service Fellowships, Franco-American Fellowships, Chinese Indemnity Scholarships, American-Scandinavian Fellowships, American-Hungarian Fellowships, American-Czechoslovak Fellowships, International Education Board Fellowships, Rockefeller Foundation Fellowships, Laura Spelman Rockefeller Memorial Fellowships, and a large number of individual fellowships and scholarships, has been greatly increased in importance by the establishment of the *Commonwealth Fund Fellowships* founded to develop international understanding especially between the two great English-speaking nations of the world; it provides for the appointment of 20 British Fellows each year, each to pursue two years of study in graduate schools of the United States. The stipend, approximately $3,000 each year, provides for traveling expenses to and from the American university, tuition and other fees, living expenses, and provision for travel in the United States during holidays. The Secretary is Mr. R. H. Simpson, 50 Russell Square, London W. C. 1. Another important addition of 1925 is the *John Simon Guggenheim Memorial Foundation* established by Senator and Mrs. Simon Guggenheim in memory of their son. These fellowships are open to Americans without regard to age, sex, race or creed. Candidates must have demonstrated unusual capacity for productive scholarship or ability in some one of the fine arts and must present definite and practical plans for foreign study. The normal stipend is $2500. The Secretary is Henry Allen Moe, Pershing Square Building, New York.

Committee on Foreign Travel and Study.—Believing that a large body of American students not eligible for international fellowships nevertheless may become leaders in business and politics, a new organization has been formed, of which Senator Coleman DuPont is Chairman; it seeks to find a way for undergraduates to study abroad without interrupting progress toward their American degrees. For this Committee President Frank Aydelotte of Swarthmore College and Mr. Marcus M. Marks made investigations in Europe in 1924, and in 1925 the Assistant Director David Allan Robertson of the American Council on Education made further arrangements (nine scholarships of $1000 each) with British and European universities, which have already proved the feasibility of highly selected American students after two years in an American college entering foreign universities for a third year, securing credit for this work on return to their own universities and graduating with their class.

The 1924 Immigration Act.—This had unexpected and wide influence on the colleges. Because the quota system resulted in diminished use of space in steerage quarters of Atlantic steamships, the companies reconstructed steerage accommodation and offered a low rate to students in "Tourist Third Class." Advantage was taken of this new class in the summer by 18,809 persons, mostly students. Efforts of the American Council on Education have led to an offering of similar opportunity for travel in South America in 1926.

Registration.—In 1924-5 the American University Union listed 425 American students registered in universities of England, Scotland, Ireland and Wales, of whom one-fourth were on scholarships, including Rhodes scholarships. In France in 1924-5 the Paris office of the American University Union reported 3789 American students (1558 men, 2231 women). Of these 694 were in the University of Paris and 452 in regular and summer sessions in provincial universities. The Commissioner General of

Immigration reports that from January 1, 1925, to September 30, 1925, 1416 foreign students were admitted to the United States, not including students from North and South America. In 1923-24 there appear to have been in the United States 6988 students, from 100 countries, in 400 institutions, of which 36 had 50 students or more.

Important publications include:—articles in the *Educational Record*, especially that of April, reprinted for general distrbution under the title: D. A. Robertson: *International Educational Relations* (*Bulletin of the Institute of International Education*). Among these publications is a list of scholarships and fellowships abroad for American students, and a list of fellowships in the United States open to foreign students.—*The World Missionary Atlas*, edited by Harlan P. Beach and Charles H. Fahs (Institute of Social and Religious Research, N. Y., 1925).—*The Foreign Student in America*, edited by Reginald Wheeler, Henry H. King, and Alexander B. Davidson (Association Press, N. Y., 1925).—*Educational Yearbook of the International Institute of Teachers' College*, edited by I. L. Kandel (N. Y., Macmillan, 1925).—*Report on Higher Education in Japan and China* by Dr. Yoshi S. Kuno, issued by the Bureau of Education.—*Education in East Africa*, published by the Phelps-Stokes Fund in 1925; the *Bulletins of the International University Information Office* maintained by the League of Nations Committee on Intellectual Coöperation appeared regularly during its second year.—*Minerva, 1925*, a volume of 1942 pages resumes its pre-war bulk and importance as a compendium of information of the learned world.

STATISTICS OF ACADEMIC EDUCATION

BY JOHN K. NORTON

DIRECTOR, RESEARCH DIVISION, NATIONAL EDUCATION ASSOCIATION

COST OF EDUCATION [1]

Type of School	Estimated Total Cost	Type of School	Estimated Total Cost
Public elementary schools (including kindergarten)	$1,163,374,074	Universities and colleges	272,815,703
Public high schools	417,297,222	Teachers' colleges and normal schools	38,794,430
Private elementary schools	77,397,600	Other schools	50,763,410
Private secondary schools	32,808,053	Total cost of education	$2,053,250,492

[1] Adapted from *Statistical Survey of Education*, 1921-22, published by the Bureau of Education, Bulletin, 1924, No. 38, Washington, Government Printing Office, 1925.

PROGRESS IN PUBLIC EDUCATION IN LAST DECADE [1]

	1913-14	1923-24
Total population	98,781,324	112,078,611
Children 5 to 17 years of age (inclusive)	26,002,153	29,345,931
Pupils enrolled in public kindergarten and elementary schools	17,934,982	20,909,274
Pupils enrolled in public high schools	1,218,804	3,407,801
Average daily attendance public elementary and high schools	14,216,459	19,158,022
Total expenditures public elementary and high schools (not including debt service)	$555,077,146.00	$1,808,321,420.00
Total expenditures per pupil in average attendance	$39.04	$94.39
Average length of school term	158.7	168.3
Number of teachers	580,058	740,163 [2]
Average annual salary of all teachers	$595.00	$1,243.00 [3]

[1] Data from U. S. Bureau of Education.
[2] Teaching positions.
[3] Includes supervisors and principals.

SCHOOL AND COLLEGE ENROLLMENT [1]

Type of School	Public	Private	Total
Kindergartens	500,807	55,023	555,830
Elementary (primary and grammar)	19,865,411	1,299,977	21,165,388
Total, elementary and kindergarten	20,366,218	1,355,000	21,721,218
Secondary (high schools and academies)	2,873,009	225,873	3,098,882
Preparatory and similar departments in colleges and normal schools	51,502	53,757	105,259
Total, secondary enrollment	2,924,511	279,630	3,204,141
Teachers' colleges and normal schools	182,387	12,147	194,534
Universities, colleges, and professional schools	199,941	350,965	550,906
Special types of schools—deaf, blind, delinquents, etc.	178,060	2,102	180,162
Total enrollment, all schools	23,851,117	1,999,844	25,850,961

[1] Adapted from *Statistical Survey of Education*, 1921-22, published by the Bureau of Education, Bulletin, 1924, No. 38, Washington, Government Printing Office, 1925.

SECTIONAL DISTRIBUTION OF HIGH SCHOOLS GIVING SEX INSTRUCTION [1]

Geographic Divisions	Total High Schools	Schools Giving Sex Instruction	Percentage
United States	12,025	2,638	21.9
New England States	698	108	15.4
Middle Atlantic States	1,214	374	30.8
South Atlantic States	1,302	186	14.2
East North Central States	3,342	771	23.6
West North Central States	2,528	553	21.8
East South Central States	706	93	13.1
West South Central States	1,108	138	12.4
Mountain States	484	124	25.6
Pacific States	643	243	37.7
No State Given	...	48	...

[1] Data taken from U. S. Bureau of Education Bulletin, 1922, No. 14, *Status of Sex Education in High Schools*, page 10.

SELECT REFERENCES ON ACADEMIC EDUCATION

By Joy Elmer Morgan

Editor, "Journal of the National Education Association"

Introduction.—New centers of educational research and publication are rapidly springing up. Bibliographic research and service are seriously in need of more generous support. This summary is suggestive rather than complete.

Background.—*The Cyclopedia of Education.* Two fundamental authorities are: Paul Monroe (edit.), (Macmillan, 1911-1913); and National Education Association *Annual Proceedings* (Vol. 63 was issued in 1925). The *Journal* and the departmental publications of the Association are also valuable.—U. S. Bureau of Education, *Biennial Survey of Education*, monographs, leaflets, circulars, and *School Life* (Periodical).—Federal Board for Vocational Education, *Documents*.—Nat. Soc. for the Study of Educ., *Yearbooks*.—Annual reports are issued by various private educational foundations. *Reader's Guide to Periodical Literature* is a key to many articles on education.

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DIVISION XL
VOCATIONAL EDUCATION

CONCEPTS IN VOCATIONAL EDUCATION

By Charles R. Allen

Editor and Consultant, Federal Board for Vocational Education

CHANGES IN APPROACH

Concentration Upon Youth.—The concentration of educational service upon youth has always apparently been based upon the theory that youth constituted the coming asset of society; that youth was the formative period of the future citizen; and hence that education of any kind, to function most efficiently, must deal exclusively with youth rather than with adults. This concept as originally accepted in vocational education led to the concentration of effort and resources on preëmployment day vocational schools.

As experience has been secured, it has appeared more and more evident that effective social service is to be secured in proportion as more and more attention is paid to giving service to the group of relatively young people who have left the general school and have gone to work; and also to the employed adult who has already made progress in a chosen occupation, but who requires additional specific training and education in order that he may either do his work better or may prepare himself for promotion or for a better job in the line of his employment. This change in concept has appeared in practice in the development of continuation schools for employed youth, of evening extension courses, and other courses of special types for employed adults. Vocational education if it is to be the most socially effective must reach those who have already gone to work.

Gainful Occupation.—In vocational education, where the objective is always to secure doing ability, there has come about a complete abandonment of the notion of faculty psychology and a full acceptance of the concept that vocational education is concerned with the establishment, through adequate repetitive experiences, of habits of manipulation and of thinking, that function in those fields of social adjustment included in the term "gainful occupations." This changed concept has naturally led to profound modifications in organization and administration in the conception of what constitutes functioning content in the organization of content and in methods of instruction.

CHANGES IN METHODS

Organization and Administration.—Changed conceptions as to organization and administration have come about through a steadily increasing realization, based upon a wider and wider experience, that the problems of vocational education are so different from those of general education that totally different methods and devices must be developed, and that the methods and devices in use for the administration and organization of the general educational school of secondary grade, and, in fact, to a considerable extent of the college and university, are not applicable in many respects in this new field of education.

This changed conception has shown itself in practice in such devices as the short unit course; elastic conditions of admission; dull season courses for employed workers; development of provision for individual courses of instruction; and practical abandonment of the old class organization for the mass handling of learners.

Restriction of Content.—From a concept which essentially limited the scope of vocational education to the professions, to a few skilled trades, a few commercial occupations, a few needle arts, and to "general preparation for farming," the concept has steadily widened until today a program of vocational education is considered as potentially responsible for dealing with any occupation whereby men and women earn their bread, on either a preëmployment or an extension basis.

This broader concept has brought with it the recognition of the fact that for each occupation there is a specific body of content which does not function in any other occupation, though there may be certain "overlaps." Hence an enormous enlargement in the concept of specific functioning content possibilities, this concept in turn tending to do away with the theory of "occupational fundamentals."

The School as a Social Agency.—The old-fashioned school was a social agency divorced from actual life activities. Today the vocational school is conceived of as a social agency relying for its efficiency and its success largely on the coöperation and assistance of those occupational groups which it has undertaken to serve. It looks to those groups for its content, for its instructors, for its coöperation, and, in many types of organization, for the giving of a definite part of the vocational training. The development of the supervised home project in home making and in agricultural vocational education, and of the part-time apprenticeship course with the utilization of the apprenticeship commission, are two illustrations of the changed concept as to the relation of the school to real life activities.

New Objectives.—It is now recognized that vocational education has for its major objectives the training and education of an individual only in those skills and knowledges that make for success in specific occupations. This concept now distinguishes clearly between vocational education and such other desirable educational activities as prevocational education, manual training, industrial arts, and other educational activities of a concrete or "practical" type.

NEW STANDARDS

Academic.—The standards of the general education school of ten or fifteen years ago were academic. They were the recitation mark, the examination mark, the passing grade, or the ability to meet the entrance requirements to an institution of higher learning. Where the objective was to give actual doing ability to an extent prescribed by the standards of the occupation itself, the standards and tests of the general education schools failed to function in vocational education. Out of experience has come the conviction that the standards by which a vocational program must be judged, the standards by which the progress of the pupil must be determined, the standards upon which satisfactory training must be evaluated, must be different from those which are used in general education.

Alterations.—Let us briefly summarize the previous standards or characteristics of a proper general vocational program as understood nowadays:

(1) *Selected groups* must receive the instruction in order to be effective with vocational students.

(2) The *subject matter* to be taught must be such as directly functions in the work for which the pupil is being trained.

(3) *Instructors* must have been occupationally *trained* in the trade or *occupation* they are to teach.

(4) *Individual instruction* should be given whenever necessary to the progress of any member of the group.

(5) Each *individual* member of the group should be permitted to *progress* as rapidly as his or her ability will permit and pro-

motions should be made at any time on the basis of ability to do the work required.

(6) *Effective training* for work can best be given *on a real job.*

(7) *The order of difficulty* should determine all *subject matter* and training should be *arranged* in the most effective instructional *order of difficulty.*

(8) The pupil, while being trained, should be placed in an *occupational atmosphere* and environment.

(9) The instruction and training should be based upon *prevailing occupational standards.*

(10) *Repetitive training* in the various operations should be given such as will enable the learner to begin work as an economic asset rather than as an economic liability to his employer.

These characteristics or standards vary widely from those set up in general education, either under the doctrine of formal discipline or under the more modern theory of the establishing of appreciations.

RELATIONS OF THE FEDERAL GOVERNMENT TO VOCATIONAL EDUCATION

By J. C. Wright

Director, Federal Board for Vocational Education

ORDINARY FEDERAL AGENCIES

Bureau of Education.—The relation of the United States Bureau of Education to vocational education is only indirect, as it has no administrative responsibilities other than those connected with certain funds, including the Congressional payments to the land-grant colleges. The Bureau of Education is charged with responsibility for seeing that the money is expended in accordance with the law.

The Bureau is a fact-finding and a fact-disseminating Government agency. By this means it aims to foster and stimulate the cause of education in the United States. With reference to vocational education the Bureau attempts to promote the work of the land-grant colleges in agriculture, engineering, and home economics. It offers such assistance as its facilities will permit in the direction of the administration and organization of these lines of vocational education.

In connection with its work in higher education the Bureau of Education gathers statistics relative to collegiate courses in the various vocational lines, such as law, medicine, commerce, and engineering. These statistics deal with curricula, length of courses, entrance requirements, teaching equipment, and the organization of the work. The Bureau also makes numerous surveys in the field of higher education, calls educational conferences for those interested in promoting various lines of vocational education, and writes reports on many phases of vocational education, describing present practice and offering implications for improvement therein.

The Department of Agriculture in coöperation with State agricultural colleges and farm organizations conducts extension work through more than 4,000 State leaders and county agencies engaged in agricultural and home demonstration work. This work is done through field and home demonstrations, farmers' institutes, and other meetings, through visits to farms and homes, through exhibits at fairs, lantern slides, moving pictures, by telephone and by office conversations, and through correspondence.

Extension work carried on with boys and girls makes necessary the employment of more than 300 State and sectional county club leaders, together with the county agricultural and home demonstration agents, and the assistance of thousands of voluntary local leaders working in coöperation with the parents. Over 500,000 boys and girls were enrolled in this work in the year ending 1923, in community clubs classified according to activities, such as corn, pigs, poultry, or canning clubs.

The Department of Labor renders service through the Bureau of

Naturalization. Children's Bureau, Women's Bureau, and Employment Service. The Bureau of Naturalization encourages special exercises of welcome to new citizens, for young people attaining their majority, and furnishes suggestions for programs for such occasions. The Children's Bureau investigates and disseminates information upon all matters pertaining to the welfare of children and child life among all classes of our people. The Women's Bureau investigates matters and formulates standards and policies to improve the welfare, efficiency, and opportunity of wage-earning women. The Employment Service offers many opportunities for the placement of young people in better lines of employment in keeping with their particular aptitudes and training. The total field force engaged in the above activities numbers about 550 people.

FEDERAL BOARD FOR VOCATIONAL EDUCATION

Organizing Act.—Through an act of Congress approved by the President February 23, 1917 (now known as the Vocational Education Act or the Smith-Hughes Act), the United States established the principle that the Nation, as a whole, has a share of the responsibility for the vocational education of persons who have entered upon, or who are preparing to enter upon, a trade or industrial pursuit; for the work of the farm or of the home; and for the preparation of teachers of vocational classes. The act also establishes the principle that direct responsibility for carrying on the work of vocational education rests upon the States, without direct organization or immediate direction by the Federal Government or its agents.

Appropriations.—The Act provided substantial financial assistance to the States for the promotion of vocational education. The sums appropriated by Congress are to be allotted to the States in proportion which their population bears to the population of the United States, for the following purposes:

(1) Payment of salaries of teachers, supervisors, and directors of agricultural subjects. (2) Payment of salaries of trade, home economics, and industrial teachers. (3) Preparation of teachers of trade and industrial subjects, teachers of home economics subjects, and teachers, supervisors, and directors of subjects in the agricultural field.

Distribution.—The first appropriation is allotted to the States in the proportion which their rural population bears to the total population of the United States, the second in the proportion which their urban population bears to the total urban population of the United States; the third in the proportion which their total population bears to the total population of the United States. The annual minimum allotment to a State is $10,000 each. The total appropriation to the States for the fiscal year ending June 30, 1918, was about $1,500,000. This increased annually until for the fiscal year ending June 30, 1926, and annually thereafter, the total appropriation will be $7,184,901.51. The law further provides that each dollar of Federal money must be matched by at least another dollar of State or local money, all of which must be expended under the supervision and control of the State board. In 1925 the States expended $2.73 of State and local money for every dollar of Federal money. A total of $20,930,215 was expended in 1925, from all three funds.

Support of Teachers.—In addition to Federal funds provided for the encouragement of States in developing programs of vocational education, the National Vocational Education Act also provides Federal aid to serve a similar purpose in the training of vocational teachers. The framers of this act very wisely saw that if programs of vocational education were to be effective, teachers must be especially trained for this special form of educational work. During the year 1925 students were enrolled in the teacher-training classes as conducted under the various State programs.

Officials.—The Board for Vocational Education consists of seven members; three are appointed by the President. The other four are ex officio, viz.: the Secretary of Labor; the Secretary of Commerce; the Secretary of Agriculture; the Commissioner of Education; the three appointees are drawn respectively from manufacturing and commerce, agriculture, and labor.

The service to be rendered by the Federal Government through these coöperative agreements with the States and the Territory of Hawaii is given by a staff of 25 Federal field representatives, each one a specialist in some particular line. The total administrative staff with which the Federal Board deals directly in the several States includes some 600 supervisors, teacher trainers, directors, and State superintendents of public instruction.

Range of Investigation.—It is the duty of the Federal Board for Vocational Education to make, or cause to have made studies, investigations, and reports, with particular reference to their use in aiding the States in the establishment of vocational schools and classes and in giving instruction in agriculture, trades and industries, commerce and commercial pursuits, and home economics. Such studies, investigations, and reports shall include agriculture and agricultural processes and requirements upon agricultural workers; trades, industries, and apprenticeships, trade and industrial requirements upon industrial workers, and classification of industrial processes and pursuits; commerce and commercial pursuits and requirements upon commercial workers; home management, domestic science, and the study of related facts and principles; and problems of administration of vocational schools and of courses of study and instruction in vocational subjects.

Subjects of Investigation.—Under this program the Federal Board has included:

1. Analyzing the job of a home maker: to determine functioning content for training courses.
2. Assistance to States in establishing part-time continuation school programs.
3. Development of training courses in retail selling, in coöperation with National Retail Dry Goods Association.
4. Development of training courses for apprentices in railway shops and in other skilled trades.
5. The betterment of conference methods for the improvement of the work of minor executives.
6. The development of special teacher training for occupationally competent instructors and for foremen in industrial plants.
7. Developing more efficient methods of instruction in commercial education.
8. Development of part-time classes for employed girls and women.
9. Assistance to States in establishing State programs for civilian vocational rehabilitation.
10. The analysis and efficient use of functioning content in agricultural vocational education.
11. Establishing standards and improving the methods of civilian vocational rehabilitation in the States.
12. The promotion and development of special training courses for negro teachers of home economics.
13. Establishing and applying standards for vocational experience of teachers of home economics.
14. Reduction of the cost per case for efficient civilian vocational rehabilitation.
15. Development of a set of efficiency factors for agricultural education and rating the States on them.
16. The development and promotion of more efficient methods of instruction in agricultural education.
17. The promotion and development of part-time courses for farm boys who have left the regular high school.
18. Coöperation with the National Association of Retail Grocers in preparing a plan for training and in the preparation of material for instruction.

STATE VOCATIONAL TRAINING

By J. C. Wright

Director, Federal Board for Vocational Education

FEDERAL AID

Boards.—The State administrative agency provided in the act is a State Board for Vocational Education designated or created by the legislative authority of the State, each consisting of not less than three members, and endowed with the necessary powers to coöperate with the Federal Board for Vocational Education in the administration of the provision of the Vocational Education Act.

Allotments.—In order to secure an allotment a State must accept the provisions of the act through legislative authority, and the State Board must provide a plan of work for the State which is approved by the Federal Board. Each of the 48 States and the Territory of Hawaii at present has a State Board for Vocational Education which is coöperating with the Federal Board in the administration of this act. The State plans submitted annually to the Federal Board for approval must show the kinds of schools and classes for which it is proposed the allotment shall be used; the plan of administration and supervision to be followed by the State board; the qualifications of the teachers, the courses of instruction; the methods of instruction to be used; and the plans for training supervisors and teachers.

The State is required to designate the State treasurer as custodian for vocational education, to have charge of the disbursements of the funds. The duty of administering the funds is placed entirely in the hands of the State board.

Acceptance.—All 48 States and the Territory of Hawaii have accepted the provisions of the National Vocational Education Act and are coöperating with the Federal Government in promoting vocational education. The benefits of the Civilian Vocational Rehabilitation Act have been accepted by the legislatures of 39 States.

Federal Approval.—It is the duty of the Federal Board to examine these plans and approve the same if believed to be feasible and found to be in conformity with the provisions and purposes of the Federal Act. The Federal Board must certify on or before the first day of January of each year to the Secretary of the Treasury each State which has accepted the provisions of the act and complied therewith, including the amounts which the State is entitled to receive. Once the plan of the State is approved by the Federal Board the administration of the act in the State is in the hands of the State Board for vocational education.

VOCATIONAL SCHOOLS

Federally Aided Schools.—The National Vocational Education Act provides for three types of vocational schools: part-time schools, where those attending do so for a portion of their ordinary working time; evening schools, attended by those over 16 years of age on their own time, after the close of the working day; and all-day schools, which are attended by those who have no other regular occupation than attendance upon these schools. The different types of schools, with their various modifications, are included within the various fields of vocational education that are within the scope of the National Vocational Education Act; that is, vocational education of less than college grade for agriculture, trade and industry, and home economics.

Enrollment.—The Ninth Annual Report of the Federal Board for the year 1925 shows that the enrollment in these three types has increased as follows:

	1918	*1925*
Part-time schools	53,005	319,020
Evening schools	68,693	190,388
All-day schools	42,488	149,962
Total	164,186	659,370

Supervised Schools.—In addition to the above enrollment in *federally aided schools* there was reported for the year 1925, 115,737 enrolled in schools under the supervision of the State boards and which were organized in accordance with the State's plan, but for which no Federal funds were used. Several States have set up the policy of using Federal funds only for new programs and of shifting the burden of cost on the local community more and more as the program develops. We may expect to see this policy further extended in the coming years in view of the fact that the amount of Federal funds available to the States ceases to increase annually after 1926.

CIVILIAN VOCATIONAL REHABILITATION

Federal.—It can be fairly assumed that the intent of Congress in enacting the Civilian Vocational Rehabilitation Act of 1920 was twofold. The first objective was that of eliminating, as far as possible, human suffering and distress which inevitably follow loss of earning power caused by accident or disease, while the second purpose was that of conserving our human resources by reducing that group of our citizens whose earning capacity has been decreased or destroyed through such causes. It can be assumed, therefore, that the motives which actuated the passage of the legislation were both philanthropic and economic, but both were in the general direction of public welfare.

States.—The first basis upon which to estimate the progress which has been made is to ascertain the degree to which the States have entered into coöperation with the Federal Government under the terms of the act. Prior to the passage of the act only 6 States had inaugurated services of civilian vocational rehabilitation for the physically disabled. At the present time 39 have enacted legislation setting up coöperative relations with the Federal Board for Vocational Education as the representative of the Federal Government, and it is probable that at least 2 more will have enacted similar legislation within the coming year.

Purpose. — Civilian vocational rehabilitation means taking an individual who, through accident or disease has practically lost his earning capacity, and restoring him to an earning power. Abundant evidence has been accumulated to show that this can be accomplished in the great majority of cases. For illustration, in a recent study that was carried on in 36 States, covering the history of over 6,000 cases, it was shown that these individuals had been so restrained and restored to earning capacity that they were enabled to follow 628 gainful occupations, ranging from highly skilled and professional employments to relatively unskilled work of a remunerative character. Moreover, the 628 gainful occupations are the ordinary and usual occupations by which people earn their living. They do not include such occupations as are commonly connected with therapeutic work, and are kinds of jobs for which normal unhandicapped workers are carried on the pay rolls of employing establishments.

Expense.—As one result of this progress, it may be pointed out that it is no small achievement for the States, on the average, to have reduced the cost of rehabilitating the disabled worker, including all expenses of administration, to the average amount of $203 per case, which cost compares very favorably with figures for general or for vocational education. In other words, the cost of retraining compares very favorably with the cost of other forms of training.

Origin.—The civilian rehabilitation program was an outgrowth of that developed for the disabled soldier, sailor, and marine.* Experience had demonstrated that the disabled man with his vocational handicap was a potential liability, but that with his vocational handicap removed, even though he retained his physical disability he became an economic asset. The United States was the first country to undertake to establish a program of civilian vocational rehabilitation on a national scale. This had not been attempted by any European country. It is true that many of the European countries, noticeably Germany, had legislation involving compensation and various forms of relief, but this is as far as they had gone at the time of the passage of the National Civilian Vocational Rehabilitation Act.

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* Organized in 1918 under the Federal Board for Vocational Education but transferred by Congress in 1921 to the United States Veterans' Bureau.

SEMI-PUBLIC AND PHILANTHROPIC SCHOOLS

By Frank Cushman

Chief, Trade and Industrial Education Service

GROUPS

Semi-public and philanthropic agencies are rendering an important service in the promotion of vocational education in the United States. The service rendered by these agencies supplements that which is being rendered throughout the country through public vocational schools organized as an integral part of the public school system. Semi-public and philanthropic institutions doing this work may be classified into two principal groups as follows:

(1) **Endowed institutions,** such as the David Rankin, Jr., School of Mechanical Trades, St. Louis, William Hood Dunwoody Institute, Minneapolis, Wentworth Institute and Franklin Union, Boston, Williamson Free School of Mechanical Trades and Girard College, Philadelphia.

(2) **Schools operated by social service agencies,** such as the Young Men's Christian Association and the Knights of Columbus.

The Isaac Delgado Central Trade School of New Orleans is an endowed institution, the operating expenses of which are paid by the city board of education. The endowment of this school may be used only for buildings and equipment.

NEW TYPES

One of the outstanding characteristics of semi-public vocational schools is their flexibility. In such institutions it is possible to carry on experimental work in vocational education in a way that would be difficult to realize in a public school. New types of organization for handling the instruction of individuals or groups can be worked out in an experimental way with a minimum of difficulty, and such schools or agencies are in a position to carry on original experiments with greater freedom than public institutions can carry them on. Much of the progress which has been made in the past ten years in vocational education has been, to a considerable extent, due to the experimental and developmental work carried on in such institutions as Dunwoody Institute, Minneapolis, as well as the more progressive public vocational schools.

For example, the organization of short unit courses, methods of individual instruction, methods of organizing trade instruction so as to permit of individual progression, the organization of instruction so as to make it possible for a man to get the training he needs when he needs it and when he can profit by it to the greatest extent, and similar practices which have been widely adopted throughout the country were to a very considerable extent influenced by the experimental work conducted in these institutions.

Due to the fact that practically all of the institutions referred to above are dependent for students upon the degree to which students receive the kind of help and instruction which they need, they are placed in a position where it is absolutely necessary for them to shape their policies and procedure to meet the needs not only of young men who are preparing themselves for profitable entrance into industrial employment but for the needs of those who are already employed. While trade schools which are operated as a part of the public school program are to some extent subjected to this condition, private and semipublic institutions are subjected to it to a very much greater extent.

Trade extension courses for employed workers constitute the greater portion of the work of endowed and semi-public institutions although pre-employment and trade preparatory courses are important features of their programs.

GROUPS SERVED BY VOCATIONAL EDUCATION

By Frank Cushman

Chief, Trade and Industrial Education Service

THE TAUGHT

All those persons who are served by the program of vocational education as it has been developed in the United States may be classified in two principal groups as follows: (1) Youths; (2) Employed workers. For both of these groups vocational education may include any form of training which fits an individual for the successful pursuit of a gainful occupation, or which assists any individual already employed in a gainful occupation to improve himself in the practice of that occupation or to secure promotion therein.

VOCATIONAL TRAINING OF YOUTH

The group referred to in this section as youths may be understood to include persons between the ages of 16 and 21. While the National Vocational Education Act recognizes vocational education as beginning as early as the age of 14, experience has shown quite conclusively that efforts to promote the objectives of vocational education are most efficient when the work with the 14 to 16 year old group is directed principally toward vocational guidance, social adjustment, and other prevocational objectives.

At the age of 16 the majority of young people are ready to make an intelligent choice of an occupation and this choice is likely to be made intelligently in proportion as the individual has enjoyed an opportunity to acquire a large amount of information concerning occupations and the ways in which the work of the world is done. Much effective vocational guidance and social adjustment work is accomplished through the special type of organization known as the general continuation school referred to under I-2.

Vocational education dealing with persons between 16 and 21 years of age is carried on under three principal types of organization, as follows: 1, Full-time courses; 2, part-time courses; 3, evening courses.

Full-time courses are usually organized upon the assumption that a group of minors can be effectively prepared for entrance into profitable employment by spending one or more years in definite preparation for going to work at a chosen occupation. The full-time day school meets the needs of a certain number of young people who are face to face with the necessity for earning a living; but in many ways a full-time day vocational school is less efficient, from the standpoint of vocational education, than various forms of part-time education.

In the field of vocational agriculture the principal development has occurred in rural high schools where the full-time preëmployment course has been notably successful. Full-time courses in vocational home economics in high schools have, however, not developed to a degree comparable with the development of agriculture, the major emphasis in home economics having been placed upon the development of part-time and evening classes. The full-time day school enrollment in home economics is less than 15 per cent. of the total enrollment. In the field of trade and industrial education, full-time day trade schools have also constituted a very small part of the program, the enrollment in full-time schools being approximately 10 per cent. of the total enrollment in all forms of trade and industrial schools. Part-time schools enroll approximately 65 per cent. of the total number and evening schools 25 per cent.

Part-Time Courses.—The most satisfactory results have been secured in the field of apprenticeship for the skilled trades where work and study have been properly combined under a part-time plan. In many cases, plans which call for an equal division of time between work and school have been eminently satisfactory. In other cases apprentices attend part-time school from 4 to 8 hours each week, for the purpose of receiving definite instruction and training supplementary to their practical experience secured on the job. A very efficient part-time plan for apprenticeship provides for one full eight-hour day in school each two weeks during the entire period of apprenticeship.

Where conditions are such that it is not practicable to set up a part-time plan for apprenticeship the next best substitute is the evening school. Evening trade extension vocational classes are open to employed workers 16 years of age or over; hence this type of organization lends itself to certain apprenticeship plans.

Evening Courses.—In the field of vocational home economics, experience has indicated that the most effective work is done with women who are confronted with the problems of managing a home rather than with girls of high school age. The evening program in vocational home economics therefore has far exceeded the enrollment in other types of schools or classes.

While the percentage of the total number served in evening and part-time schools in vocational agriculture is small the work is rapidly expanding and increasing in scope.

VOCATIONAL EDUCATION FOR EMPLOYED WORKERS

"Camel Theory" of Education.—There are two principal theories of education which are at the present time widely accepted by different groups of people in the United States.

One of these theories is based upon the assumption that a person should enter school at an early age and continue in school without interruption until he or she has finished a four-year college or university course. This theory is based upon several hypotheses, among which may be mentioned:

(1) That a college or university training for every citizen is a desirable social objective.

(2) That the educative process should be continuous and that under no circumstances should a boy or girl permit his or her attention to be diverted from regular school work by entering a definite wage-earning occupation.

(3) That an education can be secured most advantageously by devoting approximately sixteen years of one's life to school activities as a student prior to entering upon employment.

(4) That a system which is characterized by such a philosophy offers an equal opportunity for all youth.

This theory in substance amounts to an assertion that a young person should stay in school or college until his "intellectual hump" can be assumed to hold all of the knowledge which he will need to carry him across the desert of life. This theory almost completely ignores the educational value of work, as well as the psychological fact that the learning process is not complete until the learner makes some concrete applications of the principles covered by the instruction.

Apprentice Theory of Education.—A second theory is based upon the following assumptions:

(1) That training which includes only standard high school and college work does not supply the kind of education which most people need.

(2) That honest work has a great educational value, and should be utilized for its educational value throughout the period of attendance at high school and college.

(3) That all of one's education cannot be secured in school and college prior to engaging in useful and practical work.

(4) That much of the instruction and training in high school and college is meaningless to many students and is of no permanent value to them because they are unable to apply what they are taught in any definite way. Through lack of experience they fail to understand thoroughly what they are trying to learn.

(5) That a system which provides *identity* of opportunity for all does not provide *equality* of opportunity, and that the existing system of education provides a superior opportunity for the prospective professional man and a very limited opportunity for those who will engage in the ordinary occupations which must be carried on if society is to continue to exist.

This theory holds that the best results in education can be secured by the proper apportionment of work and study throughout the period of high school and college training with opportunity for application of the principles and the subject matter taught in the class. It also holds that opportunities should be provided for all persons, regardless of their age, to secure such instruction and training as they may need at any given period of their lives. It recognizes that only a small portion of one's education is secured in school or college, and that the educative process is, or should be, continuous throughout the period of life for the normal person. It discounts the value of a lot of undigested and unassimilated information received prior to getting a job. The proponents of this theory boldly assert that this is the only plan thus far formulated which offers equal educational opportunity to all and sets up a situation whereby democracy in education can be realized.

Schools for Employed Workers.—The whole program of vocational education for adult workers is justified if one accepts the apprentice theory of education. Under the "camel theory" educational opportunities, except for the selected few, are limited. Under the apprentice theory no limit is placed upon educational opportunities which may be provided for any citizen, except his desire to avail himself of those opportunities.

In general, it may be stated that vocational education for employed workers has two principal objectives, as follows:

(1) To enable individuals to become more efficient on their present jobs.

(2) To enable persons to qualify for advancement and promotion in their selected occupations.

Group Characteristics. — Persons who are attracted toward leisure time classes for either of the purposes previously discussed exhibit certain characteristics, among which may be mentioned:

(1) They usually know what they want. They are not particularly interested in courses of a general character but rather in specific instruction and training regarding some of their every-day problems.

(2) They have performed a full day's work, as a rule, before coming to school. Their attendance is an indication that they have a certain amount of ambition to get ahead. They are, therefore, characterized by a certain degree of earnestness and legitimate ambition.

(3) They usually want technical instruction rather than shop practice. This is perfectly natural inasmuch as most of them have a sufficient opportunity in connection with their daily work to learn the manipulative process of their trade. It is not at all common, however, for a man in the shop or a man working at an outside building trade to have an opportunity on the job to learn the technical aspects of his trade.

Diversity of the Work.—The program for employed workers has developed and expanded during the past seven years until the principal classes of employed workers are served to some extent. A list of 134 sample trade extension courses was recently prepared by the Federal Board for Vocational Education, and it was clearly shown that all of the principal groups of industrial occupations have been reached to a greater or less extent.

Foreman Training.—One important phase of occupational extension education is that form of foreman training which is conducted by some public or quasi public agency.

The public program of vocational education takes cognizance of the fundamental fact that industry cannot be used successfully as an educational agency for the young worker; and that consequently no apprenticeship scheme can succeed, except as the men with whom the young worker is most constantly in contact, the man who has direct control over him and his activities while at work, is able and willing to make of industry an educational agency, and intelligent enough to do it.

So, while the foreman himself may be an object of interest to local, State, and Federal educational authorities as a worker who needs to be helped to do his work well and to prepare for the next step, he becomes doubly an object of interest as a worker who has control over the vocational educational destinies of a large number of other workers.

Federal Aid.—The Federal Board for Vocational Education, as one means of promoting the progress of vocational education in the States has adopted the plan of conducting demonstration foreman training conferences or classes in plants at various points throughout this country in cooperation with representatives of State departments of vocational education, of teacher-training institutions, and of interested firms.

Foremen's conferences are round-table gatherings of foremen who are led to describe and discuss their own industrial experience, as foremen, and through the discussion to develop underlying principles, effective methods, and sound practices in dealing with their problems. A series of conferences in any plant should result in better working relationship between the departments and between the foremen and his subordinates and superiors.

Every foreman should be assisted to realize the educational problem in its relation to the work of the plant and of the industry, and to visualize himself primarily in the light of an instructor.

Most important of all, however, the conference discussion should be directed straight toward the determination of the permanent training program necessary to meet the needs of the industry, whether the program decided upon shall be limited to the foreman's own immediate instructional work with those under him, or extend to an organized plant program or to a coöperative arrangement between the industry and the public schools.

PURPOSES OF VOCATIONAL EDUCATION

By M. M. Proffitt

Specialist, United States Bureau of Education

Specific Training.—This discussion will be limited to specific courses and activities that are directly or indirectly contributing factors to the development of an efficient vocational program. The values of manual arts courses, for any other purpose than the contributions they can make to the later vocational courses, will not here be considered. Nevertheless, vocational education is very definite in its objectives and is clearly defined as to its purpose. Specifically, its purpose is to afford training that will prepare the individual for entrance upon some definite occupation.

In manual courses not of a strictly vocational type, great confusion exists as to objectives, specific courses, and types of projects. The terms "manual training," "manual arts," "practical arts," and "industrial arts" have been variously used. The useful term "prevocational education" is often used to connote any or all manual courses offered earlier in the curriculum than the strict vocational courses.

Love of Manipulation.—The essential characteristic of real vocational work is the opportunity it offers the individual for expressing himself freely in media of the common materials, such as wood and metal, stone or concrete, the expression being the result of manipulative operations and processes performed upon the material. Such work is psychological, being an appeal to the creative instinct. The desire to manipulate is, in origin, a tendency to manipulate things, whether by creating or destroying. The individual desires to see a change take place in "something" because he has altered that "something." Experience easily teaches the value of creating as opposed to destroying. The desire to manipulate things in a way that will be of use becomes a learned tendency. Manual arts courses of all types take advantage of this desire to manipulate.

Fields of Creation.—Individuals will vary in this tendency to manipulate, both as to the degree to which this trait is possessed and as to the nature of the object which the individual desires to manipulate. Nowhere in the entire educational program is the psychology of individual differences more pronounced. Some like best to manipulate material things and to create articles from wood, metal, stone, etc., while others desire to work with symbols and abstract ideas, and to create things which are largely thought products—the result of the development of ideas rather than of materials. A third class desire to direct the actions of other individuals, to assume leadership over men. These characteristic tendencies are in line with individual aptitudes and interests and are significant of their existence. The first class requires those qualifications necessary for success in the normal vocations found in the trades and industries, commerce and transportation, agriculture, and home making. The second class exhibits the qualifications necessary for success in the professional vocations, such as law, medicine, and the ministry.

Differentiation of Interest.—Any of the forms of manual arts are suited to a program of vocational education, the avowed purpose of which is definitely to prepare individuals for entrance upon specific occupations. Any of them aid the general education program in discovering individual aptitudes and interests, indicative of traits desirable for further development and refinement. As experience and practice forward these manifested interests, they will become more refined, and consequently more useful indices for the educational and vocational guidance of the individual. For example, the early manual training work of the grades aims at self-expression through the acquisition of muscular control and the opportunities it offers for connected thinking. At first there may be no marked differences among the pupils as to abilities, in either the manipulative processes or the thought processes involved. Before the completion of the elementary school, individual differences will begin to appear between two great vocational groups, the one in which the mental processes predominate, the other in which manual processes predominate. The manual training work should give, by the end of the elementary school, some indication as to aptitudes and interests for work with tools.

High School Differentiation.—The manual and industrial arts courses in the high school offer the student experiences in finer and more complex manipulative processes. The shop courses are developed more nearly along occupational lines than were those of the grades. The shop jobs may be quite definitely characteristic of trade work; still the organization of the courses is for the purpose of furnishing some participating experiences in a variety of occupational jobs rather than giving related experiences in one occupation. In addition to any discovery of aptitudes and interests in doing work with tools in the elementary school, the high school student has experiences that may lead to the discovery of more specific capacities. He may find that he has more ability and greater interest in working with some particular tools and materials.

Prevocational Values.—The contribution made to a program of vocational education by work done in prevocational schools and classes is to be looked for in connection with the discovery of aptitudes and interests in the individual which will function. It is thus possible to try him out on each of the occupations in turn; resort must be had to some form of representative sampling.

Vocational Guidance.—Well-organized courses in the prevocational school, in which some representative work of some of the larger vocational groups, such as agriculture, trade and industries, commerce, and home making is given, will furnish a type of participating experiences that will be of value in preventing misfits in the vocational education program. The whole question of vocational guidance is a very difficult one, not only because of the great number of occupations to be considered, but also because of the changing interests of the individual with developing maturity and also to the changing nature of the occupation itself.

The function of the manual arts and prevocational courses in relation to the vocational education program is to act as a series of sieves, the first ones with very large meshes separating individuals on basis of characteristics of the largest general vocational groups; the next ones differentiating a little more closely as to vocational capacities; and so on down to the last, where the individuals are separated for specific occupational training.

OPPORTUNITIES OF VOCATIONAL TRAINING

By C. F. Klinefelter

Regional Agent, Federal Board for Vocational Education

STATE VOCATIONAL SCHOOLS

Evening Schools.—Evening schools and classes are intended for persons, 16 years of age and over, who are regularly employed in definite occupations. Class sessions are held outside of the regular working day, and the members of the class attend by sacrificing some of their leisure time. In view of the fact that evening occupational extension work for adults can be given most successfully by means of short unit courses, the work is occupational extension in character rather than occupational-changing training. So far as the public program is concerned, which is supported in part by Federal aid, no funds may be used for evening classes unless the work is occupational extension in character.

Instruction in evening classes is largely concerned with the technical and theoretical side of the occupation, rather than with manipulative training. In certain cases, however, a short unit class may be organized to give manipulative training on a machine or process, in advance of the present manipulative work of the class members, in order to prepare them for advancement in the occupation. Experience has demonstrated that teachers of evening classes for adult workers must command the respect of their groups as occupational experts, and that technically trained teachers, without satisfactory occupational experience do not usually hold the interest of adult workers enrolled in their evening classes.

PART-TIME SCHOOLS

Part-time schools and classes are designed for young employed workers, between the ages of 14 to 18 years, although the upper limit has been construed to mean mental age, hence classes are in operation, under the part-time organization, for adult workers. Class sessions are held during the regular working day, on the employer's time. In the public program, which is aided from Federal funds, classroom instruction must extend over a minimum period of 144 hours per year. This training period may extend throughout the school year, for 4 or 8 hours per week, or it may be offered as a short, intensive program, as is the case with certain part-time classes for workers held during their dull season, when work at the occupation is slack, owing to climatic or other causes. The instruction offered in part-time schools may be of an occupational extension nature, it may be designed to prepare workers in juvenile "blind-alley" positions to transfer into other more permanent and desirable occupations, or it may be concerned primarily with giving further training in the fundamental arts which society deems essential, together with attention to assisting young workers to arrive at desirable adjustments toward their fellow workers, their employers, and society at large. In certain part-time schools provision is made to offer training and assistance to a type of worker commonly designated as the "in-and-outer." Here a worker, temporarily out of employment, enters the school, receives training until he is able to secure another position, perhaps on a higher level than before, when he goes back into full-time employment, until he feels the need of further training or again loses his position, when he returns to the school for further help.

ALL-DAY SCHOOLS

All-day vocational schools receive young people who have not yet gone to work and give them vocational training for specific occupations. The training in these schools includes instruction in the technical knowledge, practical operations, and the problems incident to each occupation, training in applying the technical knowledge to the practice of the occupation, and a certain small percentage of the time, usually 15 to 20 per cent., to general education subjects deemed necessary to round out the curriculum. All-day schools are operated for the same period of time as the regular schools in a given city, usually for nine months or more each year. Their courses are arranged to offer instruction for from 25 to 30 clock hours per week, depending upon the size of the city.

Separate Vocational Schools.—Certain States and cities maintain entirely separate all-day schools, having no connection with the regular high school program. In some instances such separate schools have an independent levying power for their funds, and are administered by a separate board or committee, distinct from the school board or committee.

The justification for these separate schools has been to avoid the friction and handicaps which are more or less inevitable in fitting such an organization into a regular school system primarily designed for the general, cultural education of its pupils.

Vocational Departments in High Schools.—The majority of the all-day schools or classes throughout the country are administered as separate departments in the regular high schools, as an integral part of the regular high school organization. While certain adjustments are necessary, and misunderstandings occasionally arise to cause temporary trouble, experience has fully demonstrated that it is entirely possible to offer distinct vocational courses in the regular high schools, without disruption to either interest. The vocational department in a high school issues a diploma from the vocational course, upon completion, just as a diploma is issued from the college preparatory course in the high school.

The vocational courses appeal to that class of high school students which is not interested in entering college but wishes to prepare to enter the practice of an occupation upon the completion of the high school course.

Special Schools.—Many private employers, firms, and associations carry on vocational training for their employees, by means of correspondence courses, evening classes, part-time classes, and short intensive full-time courses, conducted by their own training departments, or they negotiate with some outside training agency to come in and give their employees the training.

STATISTICS OF VOCATIONAL EDUCATION

By J. C. Wright

Director, Federal Board for Vocational Education

Table 1.—*Federal vocational education funds, by years*

Year ending June 30—	Amount of Federal Grant			
	Total	Agricultural Education	Industrial Education[1]	Teacher Training
1926 and annually thereafter[2]	$7,154,901.51	$3,021,987.39	$3,046,148.19	$1,086,765.93
1925	6,168,716.08	2,526,826.66	2,555,123.49	1,086,765.93
1924	5,190,448.02	2,036,502.12	2,067,179.97	1,086,765.93
1923	4,615,159.80	1,759,219.51	1,769,174.36	1,086,765.93
1922	4,120,833.72	1,510,993.69	1,523,074.10	1,086,765.93
1921	3,632,177.37	1,266,875.30	1,277,073.99	1,088,288.08
1920	3,051,919.01	1,022,637.75	1,032,875.96	996,405.30
1919	2,307,465.44	782,555.76	794,463.33	730,421.35
1918	1,655,586.72	547,027.79	564,444.89	544,114.04

[1] Including home economics and part-time general continuation education. Under the law not more than 20 per cent. of the Federal grant provided for "trade, home economics, and industrial education" may be expended for reimbursements on account of home economics education.

[2] For years subsequent to 1930, allotments based upon "the last preceding census" will be slightly different from those shown in this line, but will not vary from the figures given by more than a few thousands of dollars.

TABLE 2.—*Enrollment in federally aided schools (exclusive of teacher-training institutions), years ending June 30, 1918 to 1925*

Sex and Year	Enrollment							
	Total				Evening Schools Total	Part-time Schools Total	All-day Schools Total	Short Unit Course, Agricultural Schools
	Total	Agricultural[1]	Trade or Industrial	Home Economics				
Both sexes: 1925:	659,370	86,355	421,941	151,074	190,388	319,020	146,094	3,868
1924	652,994	85,984	409,843	157,167	193,674	321,191	138,131	3,256
1923	536,528	71,298	325,889	139,341	157,874	253,728	123,015	1,911
1922	475,828	60,236	296,884	118,708	133,835	228,655	113,338	...
1921	324,247	43,352	217,500	63,395	84,918	150,963	88,366	...
1920	265,058	31,301	184,819	48,938	73,122	122,974	68,962	...
1919	194,895	19,933	135,548	39,414	66,176	77,677	51,042	...
1918	164,186	15,453	117,934	30,799	68,693	53,005	42,488	...
Male: 1925:	361,139	82,458	278,681	...	94,312	166,149	97,091	3,587
1924	349,224	81,366	267,814	44	94,960	161,233	92,989	3,063
1923	283,103	67,900	215,192	11	75,495	122,533	83,541	1,534
1922	259,287	57,278	201,991	18	64,932	117,798	76,557	...
1921	192,306	40,559	151,747	...	50,000	83,218	59,088	...
1920	163,228	29,351	133,872	5	46,935	69,498	46,795	...
1919	120,351	18,399	101,805	147	42,094	44,600	33,657	...
1918	101,139	14,167	86,943	29	39,629	32,605	28,905	...
Female: 1925:	298,231	3,897	143,260	151,074	96,076	152,871	49,003	281
1924	303,770	4,618	142,029	157,123	98,714	159,958	45,142	193
1923	253,425	3,398	110,697	139,330	82,379	131,195	39,474	377
1922	216,541	2,958	94,893	118,690	68,903	110,857	36,781	...
1921	131,941	2,793	65,753	63,395	34,918	67,745	29,278	...
1920	101,830	1,950	50,947	48,933	26,187	53,476	22,167	...
1919	74,544	1,534	33,743	39,267	24,082	33,077	17,385	...
1918	63,047	1,286	30,991	30,770	29,064	20,400	13,583	...

[1] Agricultural schools were not classified as evening, part-time, and all-day schools in 1918, 1919, and 1920.

[2] Included in trade extension.

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DIRECTOR, STATE VOCATIONAL EDUCATION, BOSTON

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CHRONOLOGY FOR 1925.

JANUARY

1.—Postmaster General New announces departmental dismissals, suspensions, and resignations owing to propaganda for wage increase of workers.

2.—Senate committee presents Agricultural appropriation bill—$124,788,478, being $125,000 over the House total—and the Interior bill—$238,991,403, being $1,140,477 over the House total.

Attorney General Stone removes Assistant United States Attorney Walter D. Van Riper from office in New Jersey.

With the return of the "exiled" Republican Senators in Rhode Island the General Assembly ends the longest session ever held in the United States—one year.

Two hundred eighty-seven persons are saved from the Clyde liner Mohawk, burned at sea and scuttled in Delaware Bay.

Fascista Government in Italy begins its suppression of Communist journals, seizing offices in Rome, Naples, Genoa, and Turin.

Spain completes evacuation of 4,000 sq. miles of territory in Morocco and reduces effectives from 150,000 to 100,000.

3.—New York stock market breaks all trading records for 18 years with half-day transactions in 1,474,750 shares.

In Italian Chamber Premier Mussolini declares that he will crush all anti-Fascismo opposition within 48 hours.

5.—Four Governors are inaugurated—Mrs. Nellie T. Ross, the first woman governor in American history, at Cheyenne, Wyo., George H. Dern of Utah, Arthur G. Sorlie of North Dakota, and George W. P. Hunt of Arizona.

Harlan F. Stone is nominated Supreme Court Justice by President Coolidge in succession to Associate Justice Joseph McKenna, who resigns after 27 years of service.

In Italy former Premiers Giolitti, Orlando, and Salandra attempt to maintain an "official" Opposition in the Chamber and force two Liberal Ministers to resign from the Fascista Government.

6.—The Senate supports the President's veto of the Postal Salary Increase bill—55 to 29—the Republican vote of 28 with the vote of Senator Dial (Dem., S. C.) preventing the two-thirds vote necessary to override the veto.

President Coolidge decides not to call a conference of Governors for the purpose of furthering the Child Labor Amendment to the Constitution.

Germany protests to the Allies that the failure of the British to evacuate the Cologne bridgehead is a breach of the Versailles Treaty.

In Albania Ahmed Zogu Bey succeeds Bishop Noli as Premier.

7.—The Senate Appropriation Committee reports that, except for the Florida, the capital ships are on the 5-5-3 basis, and the Naval appropriation bill carrying $289,000,000.

Gov. Smith, in opening the New York legislature, asks non-partisan consideration of State problems, continuance of the 25 per cent. income tax reduction, and increased application of water power to public utilities.

Paol Loebe, a Socialist, is elected President of the German Reichstag, disrupting Nationalist plans.

8.—President Coolidge is announced by Secretary Wilbur to be opposed to gun elevation, although contrary to expert opinion, which is that it would be no violation of the naval disarmament treaty.

John H. Trumbull succeeds Hiram Bingham as Governor of Connecticut.

The Child Labor Amendment to the Federal Constitution is ratified by the California legislature: the Senate, 36 to 3; the House, 69 to 9.

9.—The War Supply bill carrying $331,000,000, of which $40,000,000 is for rivers and harbors, is passed by the House.

10.—Secretary Hughes resigns as head of the State Department and Frank B. Kellogg, Ambassador at London, is nominated to succeed him.

American war claims are adjusted by Col. Logan and the British Chancellor of the Exchequer under the Dawes plan: the bill of $255,000,000 for the American army of occupation and that of $350,000,000 for war-damage.

11.—In China, Gen. Chi Hsieh-yuan usurps the Peking administration in the native quarter of Shanghai.

Of the German total of reparation payments, amounting to 286,263,447 gold marks, France has received 113,600,000 and England 65,800,000.

12.—Jonathan M. Davis, the retiring Democratic Governor of Kansas, is arrested charged with accepting bribes for pardons.

In Italy Premier Mussolini, in opening the Chamber, introduces a bill to wipe out Freemasonry as a secret society and forbidding membership therein of Government employes.

14.—The Senate having substituted the Jones amendment for the Underwood Muscle Shoals bill and then displacing the former by the Norris government-operation amendment, on Jan. 13, now adopts the Underwood measure, which provides for the leasing of Government plants for manufacturing nitrates and the production of electric power: 50 to 30.

The McFadden bill, revising the banking laws, with the Hull amendments for branch banking is passed by the House.

The Child Labor amendment is defeated in the South Carolina legislature.

An international financial agreement is signed at Paris by Belgium, France, Great Britain, Italy, Japan, the United States, Brazil, Greece, Portugal, Rumania, Yugoslavia, and Czechoslovakia, which among other things fixes the Ruhr occupation profit at 800,000,000 gold marks.

15.—Major Gen. Robert Lee Bullard retires as commander of the Second Corps, with headquarters at Governor's Island, N. Y., and is succeeded by Maj. Gen. Charles P. Summerall. Gen. Bullard entered the service in 1901.

16.—Texas Rangers, famous in the history and fiction of the Mexican border, are declared to be an unconstitutional organization by a San Antonio court and surrender their arms.

John D. Rockefeller, Jr., donates $1,600,000 toward reconstruction of Tokio Imperial library, the Japanese Government having appropriated a similar amount.

17.—The House adopts Urgent Deficiency bill reported by conference, carrying $150,000,000 for tax refunds, $3,501,200 for Dam No. 2, Muscle Shoals, and $3,000,000 for Inland Waterways stock purchase.

In Italy the Chamber adopts Mussolini's electoral reform bill—268 to 19—and adjourns till Feb. 15.

18.—In Germany the Luther Cabinet decrees resumption of the eight-hour law on April 1.

19.—The Senate defeats a measure to provide money for the elevation of naval guns.

Secretary Hughes makes formal criticism of Paris agreement of Jan. 14 to the effect that it "neither surrenders nor modifies any treaty right of the United States."

20.—The Senate adopts majority report of investigating committee condemning "Teapot Dome" leases: 40 to 30.

Mrs. Miriam Amanda Ferguson is inaugurated Governor of Texas.

21.—The House adopts the Cramton resolution authorizing the Secretary of War to restore immediately the Robert E. Lee mansion in Arlington Cemetery.

British dreadnought Monarch is sunk under terms of Washington pact.

22.—President Coolidge signs the Treasury Post Office bill carrying $760,000,000.

Senator Borah (Rep., Id.) opens his campaign against showing any sentimental partiality toward the French war debt.

In Germany, the Luther Cabinet supported by Nationalists, Popularists, Economic Unionists, Bavarian People's party, and Catholic Centrists receives a vote of confidence in the Reichstag: 246 to 160.

Costa Rica resigns as a member of the League of Nations.

23.—Senator Bruce (Dem., Md.) answers Senator Borah's French war debt speech of the day before.

In Chile the Alamirabo Government is deposed by the military junta and President Alessandri is recalled.

24.—President Coolidge, in an address before the Women's Conference on Cause and Cure of War, favors joining the World Court.

Klan leader S. G. Young is killed by Ora Thomas, deputy sheriff of Herrin, Ill., who is, in turn, killed by Klansmen.

Total solar eclipse is observed from Minnesota to beyond the North Atlantic States.

Herbert H. Asquith is made Earl of Oxford and Asquith with seat in the House of Lords.

25.—Representatives of New York, New Jersey, and Pennsylvania sign compact for utilizing Delaware River water at an expenditure of $500,000,000 within the next century and guaranteeing a supply of a billion gallons a day.

Foreign securities valued at $1,268,438,394 were purchased in the United States in 1924, according to a Department of Commerce report.

Tut-ankh-amen's tomb, after being closed a year, is reopened by Howard Carter in Egypt.

26.—President Coolidge, in address to budget organization, requests reduction of national expenditures by three billion—the first of his economy speeches.

Child Labor amendment is rejected by the legislatures of Oklahoma, Kansas, Ohio, and Texas, and by the North Dakota Senate.

Everett Sanders succeeds C. Bascom Slemp as secretary to President Coolidge.

Cathedral of St. John the Divine, New York City: contract is let for building nave at a cost of $5,900,000.

27.—The Smith-Hoch resolution directing the Interstate Commerce Commission to regard farm products as basic industry in adjusting freight rates is adopted by the Senate.

28.—Child Labor amendment is ratified by New Mexico House—40 to 8—and defeated by those of Delaware and Washington.

29.—Col. William Hayward resigns as U. S. Attorney for the district of New York, and is succeeded by Emory R. Buckner, on Jan. 31.

Premier Herriot's foreign policy receives vote of confidence in the French Chamber: 541 to 32.

30.—The Senate passes the Postal Pay and Rate Increase bill: 70 to 8.

In the case of former Assistant Secretary of War Benedict Crowell, Attorney General Stone withdraws appeal on the ground of insufficient indictment.

Thomas B. Felder and Gaston B. Means are convicted by New York Federal jury on charge of conspiring to obstruct justice and are each fined $10,000, with an additional two years' imprisonment for Means.

In Russia, Frunse succeeds Trotsky as Commissar for Army and Navy.

31.—Patriarch Constantinos of the Greek Orthodox Church is deported by the Turkish authorities from Constantinople.

FEBRUARY

1.—The Agricultural Conference recommends a special Federal agency to represent the small shippers of farm products.

In China there is a conference of 146 military leaders at Peking, where the Moscow program and the anti-foreign policy are discussed.

2.—The House passes six-year building program bill—243 to 116—but the $150,000,000 estimate is not appropriated.

The Air Mail bill, promoting commercial aviation by civil means, is signed by the President.

In Nome, Alaska, a diphtheria epidemic is broken by dog-sleds bringing antitoxin from Nenana, 650 miles.

Suppression of French Embassy at the Vatican is voted by the French Chamber, 315 to 250, but on account of the special status of Alsace-Lorraine an agency must be maintained there.

Don Gelasio dei Principi di Caetani is succeeded by Giacomo de Martino as Italian Ambassador at Washington.

3.—A resolution favoring the World Court is reported favorably by the House Foreign Affairs Committee.

The Child Labor amendment is defeated by the Connecticut Senate—33 to 1—and by the Nevada Assembly: 19 to 18.

Discovery of the "missing link" is announced by Prof. Raymond Dart at Johannesburg, South Africa. At Ur, the University of Pennsylvania expedition unearths a library with Chaldean tablets said to date from 2500 B.C.

4.—Col. Charles R. Forbes, former Director of the Veterans' Bureau, and John W. Thompson, contractor, are convicted by a Chicago Federal court and each sentenced to two years and a $10,000 fine on charge of conspiring to defraud the Government in hospital contracts.

Polish debt settlement with the United States is ratified by the Senate at Warsaw.

5.—Attorney General Stone's appointment to the Supreme Court is confirmed by the Senate: 71 to 6.

6.—Brig. Gen. William Mitchell criticizes Navy and Army aviation before the House Air Service committee.

John D. Rockefeller donates $500,000 to the Cathedral of St. John the Divine.

In Nepal, northern India, the Maharajah Tribhuba Bir Bikram abolishes slavery, freeing 51,419.

7.—The $150,000,000 highway appropriation bill with Senate amendments approved by the House goes to the President.

8.—Mayor Hylan of New York is blamed and the Transit Commission is exculpated in report of Supreme Court Justice John V. McAvoy.

Japanese battleship Tosa is sunk under Washington disarmament treaty.

10.—Three treaties are ratified by the Senate: the German Commercial, the Palmas Island accord with Holland, and the Rumanian extradition.

Building bridge laws for the promotion of Hudson River traffic to New York are passed by New Jersey legislature.

A germicide for kidney germs, called hexylresorcinol, is announced by Dr. Veader Leonard of Johns Hopkins School of Hygiene.

11.—The election of Calvin Coolidge as President and Charles G. Dawes as Vice-President are formally declared by Congress after counting the electoral votes; Coolidge's popular plurality is 7,403,229; his electoral majority, 233.

Naval Appropriation bill is signed by the President calling, incidentally, for a second disarmament conference.

International Opium Conference at Geneva, from which the United States delegates withdrew on Feb. 6 and the Chinese delegates the next day because producing countries declined supervision of output, signs convention.

12.—The Child Labor amendment is rejected by the Vermont House: 229 to 3.

A coal mine explosion kills 200 at Dortmund, the Ruhr.

13.—The Bulgarian designate Minister at Washington, Nicola Mileff, is assassinated in Sofia.

The Dyer China trade bill, passed by the House, is sent to the Senate.

14.—The President nominates Frank B. Kellogg Secretary of State, William M. Jardine Secretary of Agriculture, and George Parks Governor of Alaska.

In Italy the Senate passes the electoral bill: 214 to 58.

15.—A New York, New Haven & Hartford R. R. bond issue for $23,000,000 is oversubscribed without underwriters.

16.—The Senate confirms the nomination of Mr. Kellogg as Secretary of State and passes its own Postal Pay and Rate bill, wiping out House amendments.

16.—Aircraft Committee of the House hears testimony from naval and army officials and draws the conclusion that air defense is inadequate.

In Germany, the Luther Government asks for credits of $175,000,000 to Ruhr industrialists as indemnity for Franco-Belgian occupation.

17.—The Child Labor amendment is defeated by the Pennsylvania Senate: 43 to 4.

Dr. Wilhelm Marx accepts Premiership of Prussia.

18.—That the battleship is the final arbiter in naval warfare is held by report of the General Board of the Navy published by the President.

That a British married woman should not lose her nationality by marrying an alien is decision of the House of Commons.

19.—At a second Opium Conference at Geneva ten countries sign a pact suppressing opium smoking.

20.—Congressmen's increase salary bill is passed by House: raises their pay and that of Cabinet officers to $10,000 and of Speaker of the House to $15,000.

General Mitchell testifies before House Committee that "capital ships are absolutely at the mercy of aircraft."

Cuba signs League protocol covering Article XVI. as to economic blockade.

First foreign mail flight made by the airship Los Angeles—Lakehurst-Bermuda and back, in 33 hours without landing.

21.—China pays $300,000 for bandit raid on Shanghai-Peking express of May 26, 1923.

In Transjordania, the Arab Nationalist Premier, Rikabi Pasha, is deposed.

22.—Simon Guggenheim with an endowment of $3,000,000 establishes fifty $2,500 fellowships for international study.

23.—The Underwood Muscle Shoals bill is returned to conference by the Senate, which confirms the appointment of William E. Humphrey as Federal Trade Commission member.

The President, in address before the Women's Conference on National Defense, advises the substitution of law for force, also the promotion of security.

Plans to eliminate the first two years of college work and promote additional research work are anounced by President Goodnow of Johns Hopkins University.

24.—Revolt against the Turkish Angora Government breaks out in Kurdistan under Sheik Saïd.

25.—In Indiana eighteen Democratic Senators return to their duties when warned of an obstruction law against their attempt to prevent passage of a "Gerrymander" bill.

Gutzon Borglum, sculptor of the Stone Mountain Confederate Memorial, is dismissed by the Association at Atlanta, Ga.

26.—Postal Pay and Rate Increase bill as reported by conference raising revenue $60,000,000 and salaries $68,000,000, is adopted by Senate and goes to the President.

Rear Admiral Hilary P. Jones testifies before the House Aircraft Committee that while aircraft are indispensable "the battleship is dominant" in naval warfare.

The Sargasso Sea, in mid-Atlantic, is located by the New York Zoölogical Society's ship Arcturus.

For perfecting British air defense the House of Commons appropriates £21,319,300.

27.—Rear Admiral William S. Sims testifying before House Committee disagrees with Brig. General Mitchell on single air department but declares that all ships are at the mercy of aircraft.

Senate amendment to Independent Appropriations bill cancelling 50 per cent. of Pullman railway fares, adopted Feb. 13, is rejected by House: 255 to 123.

American marines dominate native uprising on the San Blas, Panama.

In the Japan House of Representatives a bill is introduced permitting foreign ownership of land.

28.—The Senate passes Rivers and Harbors bill, carrying $40,000,000, and votes increase of salaries for Senate, House and Cabinet members.

The President signs the Postal Pay and Rate Increase bill, and transmits to Senate a suggestion that the Department of Justice investigate the Standard Oil dissolution decree.

A mild earthquake visits the North Atlantic States.

MARCH

1.—Dr. Harry Emerson Fosdick preaches farewell sermon at the New York First Presbyterian Church.

2.—Conference report on Deficiency bill is rejected by the Senate: 49 to 32—on account of $8,400,000 additional building expenses included.

The House passes three bills: the Veteran Hospitalization carrying $10,000,000, the Rivers and Harbors with $42,116,134, and the National Probation: 170 to 49, and votes to apply the $10,000 Persian indemnity, due the expense of bringing Major Imbrie's body home, to Persian education.

The new Italian Ambassador, Giacomo de Martino, is received by President Coolidge.

3.—A World Court resolution is gratuitously adopted by the House: 301 to 28.

4.—Deficiency bill carrying $2,669,042,000 without the additional building expenses cut out by the House is adopted by the Senate, which tables the King World Court resolution, and the Sixty-eighth Congress comes to an end with the House adopting the Senate's amendments to the Naval Omnibus bill: 82 to 3.

Inauguration of Calvin Coolidge as President and Charles G. Dawes as Vice-President, the former endorsing the World Court, economy and tax reduction, and the latter, in calling to order the Senate of the Sixty-ninth Congress, advocating abolition of limitless debates.

The Cabinet and Congress increase salary bill is signed by the President.

Frank B. Kellogg and William M. Jardine take office respectively as Secretary of State and Secretary of Agriculture, the latter in place of Howard M. Gore elected Governor of West Virginia.

The Child Labor amendment is rejected by the Missouri House: 127 to 3.

Dr. F. G. Boudreau succeeds Dr. Eichel as head of the epidemiological intelligence service of the League of Nations' Health Service. Dr. Bourdreau is an American.

Photographs of the Washington inauguration ceremonies are instantly transmitted over the American Telephone & Telegraph Company wires to New York, Chicago and San Francisco.

5.—Senate of the Sixty-ninth Congress, in special session, confirms nomination of Harry S. New as Postmaster General.

The Child Labor amendment and a bill against Sunday amusements, advocated by the Lord's Day Alliance, are rejected by the Indiana House.

Christian Churches gained 690,000 new members in 1924 with the Roman Catholic leading with 220,000—according to report in The Christian Herald.

6.—Brig. General Mitchell is replaced by Lieut. Col. James E. Fechet as Assistant Chief of the Army Air Service.

Anti-aircraft guns fail to secure a single hit at movable target test at Fort Monroe, Va.

British Labor members who left the House of Commons the day before on account of the suspension of David Kirkwood return and vote against the Trades Union Political Refund bill: 325 to 153.

7.—The Couzens report on secret testimony on income tax refunds is received by the Senate.

John D. Rockefeller, Jr., gives Tuskegee and Hampton Institutes $1,000,000.

The Genesis of Locarno pacts is seen in conference between the British Foreign Secretary Austen Chamberlain and the French Premier Herriot.

9.—Senator Ladd (Prog., N.D.) is replaced by Senator Stanfield (Rep., Ore.) as chairman of Public Lands Committee by a Senate vote of 36 to 13.

The "Teapot Dome" naval oil reserve trial is begun at Cheyenne, Wyo.

President Coolidge issues the Tacna-Arica award: a plebiscite is to determine the nationality of the disputed Peruvian-Chilian territory provinces.

A tomb, surmised to be that of King Sneferu (3,000 B.C.), is opened in Giza pyramid of Egypt by the Harvard-Boston expedition.

10.—For the first time since 1868 the Senate by a tie vote fails to confirm a Cabinet appointment: Charles B. Warren as Attorney General.

The Child Labor amendment is referred to a referendum by the New York Senate—30 to 6—and the Assembly passes two prohibition enforcement bills: 83 to 61.

Economic Committee of the League of Nations announces that 25 States have signed and 6 have ratified the protocol for arbitration in commercial contracts.

Rafael Palma, a Filipino, is elected president of the University of the Philippine Islands.

11.—President Coolidge nominates Charles C. Eberhardt Minister to Nicaragua and George T. Summerlin, to Honduras; Wallace Riddle resigns as Ambassador to Argentina.

World Court's decision regarding compulsory exchange of nationals accepted by Turkey and Greece at League Council meeting.

12.—The Senate abolishes caucus rules for members and allows the insurgents—Ladd, Frazier, Brookhart and LaFollette—patronage.

In spite of the rejection of Charles B. Warren by the Senate, March 10, the Presient again nominates him Attorney General nd two days later issues a statement exressing the wish that he "may be unampered in choosing his own methods of xecuting the laws."

Germany's new Ambassador at Washington, aron von Maltzan, is received by President oolidge.

At the League Council the British Foreign ecretary, Austen Chamberlain, rejects the rotocol of September, 1924, and outlines hat becomes the Locarno treaties.

13.—The Isle of Pines is definitely ceded o Cuba by ratification of treaty by Senate: 3 to 14.

On the charge of fraud the mails are closed o the Southern Cotton Exchange and allied oncerns by the Post Office Department.

14.—Near East Relief annual report to he Senate shows that 1,000,000 Americans ontributed $4,265,322 and that 554,978 perons were aided at an expense of $3,966,329.

Hoffman Philips, Minister to Uruguay, is ransferred to Persia.

Germany is invited to join the League of ations without special treatment but with place on the Council.

16.—Nomination of Charles B. Warren as ttorney General is again rejected by the enate, this time by a vote of 46 to 39, with Republicans, 4 Radicals, and 1 Farmeraborite voting with 35 Democrats.

Renick W. Dunlap is nominated Assistant ecretary of Agriculture.

New York and Rome are connected by the pening of a new cable 5,422 miles long.

17.—Dr. Jacob Gould Schurman is nomnated Ambassador at Berlin in succession o Alanson B. Houghton, who replaces Frank . Kellogg at London.

John G. Sargent is confirmed as Attorney eneral by the Senate together with thirty ther appointments and the Senate adjourns ine die.

A Council of State is appointed by King eorge of England consisting of Prince enry, the Archbishop of Canterbury, the ord Chancellor, and Prime Minister Baldwin, o act during his Majesty's absence in the editerranean.

18.—Unfavorable report on birth-control ill giving discretionary powers to physicians s accepted by the Connecticut Senate.

The Child Labor amendment is rejected by he New Hampshire legislature: the Senate nanimously; the House: 327 to 37.

Diplomatic transfers and appointment: eter Augustus Jay from Minister to Runania to Ambassador to Argentina, U. Grant Smith from Albania to Uruguay and George . Kreck as Minister to Paraguay.

Fire in Tokio, Japan, renders 20,000 perons homeless.

A tornado kills 1,000 in Missouri, Illinois, nd Indiana.

Mme. Russaud's famous waxworks are detroyed by a fire in London.

At Palm Beach, Florida, the Breakers Hotel is wiped out by fire.

19.—The Patent Office is transferred by the President from the Interior Department to that of Commerce.

Voting machines are voted by the New York Senate for New York City. The bill is passed by the Assembly—90 to 30—March 24.

23.—Teaching of evolution is prohibited by law in Tennessee.

Gen. John J. Pershing is appointed head of the Tacna-Arica Commission to execute the award made by President Coolidge.

In Japan the Alien Land Ownership bill of Feb. 27, amended so as to prohibit ownership by nationals in whose countries the Japanese cannot own land, is passed by the Diet.

In Egypt, Zaghlul is elected President of the Chamber and Premier Ziwar resigns, followed by the dissolution of Parliament.

24.—The British Foreign Secretary, still further paving the way to Locarno, expounds the British foreign policy in the House of Commons.

The Sinclair oil concession on Saghalien is declared void by a Moscow Soviet Court on the ground of tardy development.

25.—The whipping post is to stand in Delaware by vote of House: 31 to 1.

26.—A resolution to eliminate grade-crossings carrying a constitutional amendment to permit $300,000,000 bonds is adopted by the New York Senate, and the legislature adopts the Port of New York bridge bills with $2,000,000 for two Staten Island bridges and $100,000 for a survey of the Hudson bridge at 125th Street.

In Germany, the draft of a revaluation law pertaining to all official bonds is published: values of 70 billions are to be reduced to three and one half.

27.—Senator Burton K. Wheeler is indicted by Washington grand jury charged with conspiracy to obtain Government oil and gas lands in Montana.

In New York the legislature adopts a 25 per cent. reduction of income taxes, provision for a constitutional amendment for a $100,000,000 bond issue, and an appropriation of $9,000,000 for rural education.

Muscle Shoals Commission is appointed by the President composed of legislators and experts.

28.—The Prince of Wales goes on a seven-months trip to South Africa and South America.

29.—In Japan the Diet pases a manhood suffrage law increasing the electorate from 3,000,000 to 14,000,000.

30.—The Shipping Board accepts a cash offer of the Dollar Line of $5,625,000 for five ships of the President type.

In Texas, Governor Miriam A. Ferguson signs clemency bill pardoning her husband impeached as Governor in 1917.

APRIL

1.—Prohibition enforcement is placed in charge of Lincoln C. Andrews, Assistant Secretary of the Treasury, while Assistant Secretary Moss remains in charge of the Internal Revenue Bureau.

With M. Hammarskjoeld as chairman, jurisprudence experts assemble at Geneva under the auspices of the League to codify international laws.

Eighteen union mines suspend operations in West Virginia coal fields owing to a general strike.

Hebrew University, on Mount Scopus, Jerusalem, is opened by the Earl of Balfour.

2.—In France, Etienne Clementel, Minister of Finance, resigns.

3.—Edward L. Doheny, Harry F. Sinclair, and Albert B. Fall have their indictments squashed on account of technicality and the Government appeals.

Child Labor amendment is rejected by the West Virginia House: 66 to 19.

In France, Anatole de Monzie is appointed Minister of Finance.

4.—Gerald Chapman, mail robber, is convicted of murder at Hartford and sentenced to be hanged.

Germany and Belgium sign colonial trade agreement.

5.—Scheme for the Government to buy bonded liquor and dispense it under Federal control is advanced by Palmer Canfield, Prohibition Director of New York. Five hundred bootleggers are arrested in Omaha, Neb.

6.—President Coolidge, in address before the National Cotton Manufacturers' Association at Washington, contrasts the foreign discriminatory policy with protective tariffs and constitutional requirements with export taxes.

Senator William A. Clark's will bequeaths to the Metropolitan Museum of Art at New York art objects worth $3,000,000. The bequest is rejected on April 20 and goes to the Corcoran Gallery, at Washington.

Prohibition is turned down by a popular vote in West Australia: 64,377 to 35,806.

7.—Child Labor amendment is rejected by the West Virginia Senate: 22 to 4.

The largest airplane carrier in the world, the Saratoga, is launched at Camden, N. J.

8.—Secretary of the Navy Wilbur appoints Lieut. Commander Robert Y. Byrd to command the MacMillan polar expedition's navy flying unit.

9.—Fredick C. Hicks, a New York lawyer, is appointed to succeed Col. Miller as Alien Property Custodian.

John Van Antwerp MacMurray, of the State Department, is nominated Minister at Peking.

The British Colonial Office announces vast scheme for colonizing Australia at the expense of both Governments.

10.—In France, the Herriot Government resigns after defeat in the Senate: 156 to 132; it is succeeded four days later by one formed by Paul Painlevé, President of the Chamber, which brings in Joseph Caillaux as Minister of Finance.

11.—Theodore Roosevelt, Jr., and Kermit Roosevelt leave New York on an exploring expedition to Turkestan.

13.—Compulsory arbitration under the Kansas Industrial Court is held to be unconstitutional by the Supreme Court of the United States.

The President, under the "flexible" provision of the tariff law, increases duty on potassium chlorate from 1½ to 2¼ per pound.

The Ford Detroit-Chicago aviation service is opened with an all-metal freight airplane.

14.—The Child Labor amendment is rejected by the Minnesota Senate: 36 to 28.

Records of the building of the Ziggurat by King Ur-Engur of Babylonia are discovered at Ur by C. Leonard Wooley's expedition.

15.—The first woman is appointed to the diplomatic service: Lucille Atcherson to be third secretary at the American legation at Berne.

King Boris of Bulgaria is fired at by Bulgar Communists on the road to Sofia and General Gheorghieff is assassinated in the street; at his funeral on the 16th the Cathedral of Sveti Kral is blown up, with the loss of 160 killed, among whom are many prominent men.

17.—Governor Smith of New York vetoes ten Republican bills, including the provision for an executive budget, voting-machine requirement for New York City, and the 48-hour measure for women in industry.

Bishop William Montgomery Brown, unfrocked by the Episcopal Board of Review for heresy, on Jan. 15, is forbidden to preach in a New York church by Bishop William T. Manning.

18.—The Dean of St. Paul's Cathedral, London, the Very Rev. William Ralph Inge, arrives in New York on a lecture and observation tour.

19.—The padlock scheme of dealing with liquor-trafficking restaurants is invoked by Emory R. Buckner, U. S. District Attorney at New York.

General Pershing and Vice-President Dawes address meeting in Faneuil Hall, Boston, in celebration of the 150th anniversary of the Battle of Lexington.

At the twenty-fifth anniversary of the Associated Press as a co-operative agency Kent Cooper succeeds Frederick Roy Martin as General Manager over news distribution to the 1,198 members.

20.—Yale University establishes a Dramatic department and Prof. George Pierce Baker of Harvard is to inaugurate it in the Autumn.

A Foreign Service School is opened by the Government at Washington with 25 students out of 200 applicants.

Capt. Ninkoff, Bulgarian Communist leader, is killed by the police in Sofia, and the next day Capt. Yankoff is killed in the same way.

21.—Vice-President Dawes, in a speech before the Associated Press at New York, declares: "Any restraint upon the people imposed by a Senate rule" is unconstitutional.

Japanese freighter Gaifuku sinks off Nova Scotia with all on board—38.

22.—The McAvoy report on New York City transit situation is approved in a State bill which is signed by Governor Smith.

23.—Temperature reaches 83 degrees in New York City and 86 in Chicago.

24.—Senator Burton R. Wheeler is acquitted by a Montana jury of charge of receiving fees for cases before the Interior Department.

25.—Secretary of State Kellogg praises the World Court in address before the Society of International Law.

26.—Army and navy manœuvres begun April 15 at Hawaii end in victory for the attacking force.

Pulitzer prizes for journalism, 1924, go to Edna Ferber, Sidney Howard, Edwin A. Robinson, James W. Mulroy, and Alvin H. Goldstein.

In Germany, Field Marshal von Hindenburg is elected President of the Reich, having received 14,655,766 votes, with Marx nearly a million behind.

28.—Burglary with a deadly weapon may be per se a capital offense in a bill passed by the Illinois Senate.

Peter A. Jay becomes Ambassador to Argentina, being succeeded as Minister to Rumania by William S. Culbertson.

England resumes the gold standard, restores the luxury import tax, and places protective duties on silk and hops, according to budget speech made by Winston Churchill, Chancellor of the Exchequer.

29.—The whipping post for armed robbers is established by act of the Michigan Senate.

Gasoline for motor vehicles is taxed one cent a gallon in Rhode Island by bill signed by Governor Pothier.

Manufacturing of gambling devices is prohibited in Pennsylvania by a bill signed by Governor Pinchot.

The Child Labor amendment is rejected by the Florida legislature.

Gold mine concessions are granted by Moscow to a British firm to operate in the Lena Fields of Siberia.

30.—A bill to compel the daily reading of the Bible in the public schools of Ohio is vetoed by Governor Donahey.

MAY

1.—Twenty-five persons are killed and thirty are injured by wrecking of the Berlin-Danzig express near Stargard.

2.—A lumber conservation committee is formed with Secretary Hoover as chairman.

New record for sustained flight is made by the navy seaplane PN-9: 2,300 miles in 28 hours, 30 minutes.

Nicholas Murray Butler, President of Columbia University, succeeds Elihu Root as head of Carnegie Endowment for International Peace.

An Aeronautical Ministry with Cabinet portfolio is established in Italy.

3.—President Coolidge, at laying cornerstone of Jewish Centre at Washington, declares: "The Jewish faith is predominantly the faith of liberty."

The President's economic policy is censured in business centres as it is said to prevent people from buying.

Thirteenth annual convention of the United Synagogues opens at Atlantic City.

4.—Ambassador Houghton, in addressing the Pilgrims in London, threatens American withdrawal unless Europe promotes peace and reconstruction.

The Very Rev. Dr. Serapio Tamayo of Manila is made Master General of the Dominican Order.

5.—Secretary Mellon talks tax reduction to the Mississippi Bankers Association at Jackson, Miss.

Gold Standard law is adopted by the British House of Commons.

7.—Austria's first post-bellum minister to the United States, Edgar L. G. Prochnik, is received by President Coolidge.

8.—President Coolidge addresses the seven prize winners for orations on the Constitution—seven high-school pupils out of 1,400,000 contestants.

Twenty-three excursionists are drowned by sinking of the Government towboat Normand, in the Mississippi, near Memphis.

The Blue Nile dam at Makwar is completed at a cost of £9,000,000 and capable of irrigating 300,000 acres for cotton growing.

Twenty persons are sentenced to death by Sofia courts-martial for complicity in Cathedral outrage of April 16.

9.—World Advertising Convention opens at Houston, Texas.

Representatives of the Little Entente—Czechoslovakia, Yugoslavia, and Rumania—meet at Bucharest.

11.—The right to operate motor 'buses, under its Home Rule law, is conceded New York City by the Supreme Court of the State.

The Geneva League conference against export of arms excepts revolvers from ban.

12.—In the Newark and Jersey City elections, the Democratic candidate is defeated in the first and Democratic commissioners are re-elected in the second.

International Police Conference opens in New York City, with forty-four nations and 400 American police departments represented. On May 15 it adopts a resolution favoring finger-printing of aliens.

13.—A new Belgian cabinet is formed after several weeks' delay by M. Van de Vyvere, who takes the portfolio of Finance and with M. Ruzette still as Foreign Minister.

Leon Trotzky, who returned from the Crimea and ousted Zinovieff on May 7, is elected a member of the Moscow Cabinet.

15.—Rear Admiral Samuel McGowar (Retired) becomes Highway Commissioner of South Carolina.

Woman suffrage in municipal elections is granted by a Mussolini bill passed by the Italian Chamber.

16.—The United States intimates to its war debtors that a settlement would not be unwelcome.

17.—Pope Pius XI. begins a series of canonizations for the Holy Year by elevating the French Sister Thérèse of the Infant Jesus.

First of a series of Franco-Spanish conferences is held at Madrid for more united action in the Moroccan campaign.

20.—A bill calling for a referendum on 2.75 per cent. beer is passed by the Wisconsin Assembly.

Former Governor Jonathan M. Davis is acquitted of bribery by a Kansas jury.

Motor boat, Teaser, on the Hudson beats, by 27 minutes, the Twentieth Century Limited—New York-Albany—averaging 52 miles an hour over 150-mile course.

The Mecklenburg "Declaration of Independence" celebrates its 150th anniversary at Charlotte, N. C.

Glen Frank leaves editorship of The Century Magazine to accept the Presidency of the University of Wisconsin.

Lord Allenby resigns as British High Commissioner of Egypt, and is succeeded by Sir George Lloyd; Sir Herbert L. Samuel is succeeded by Field Marshal Herbert C. O. Plumer as High Commissioner for Palestine.

21.—At the New York City Hall of Fame busts are unveiled of John Marshall, Gen. Sherman, Harriet Beecher Stowe, Charlotte Cushman, and Asa Gray, the botanist.

In Ontario, Canada, a 4.4 per cent. beer measure goes into effect after a period of prohibition.

Lady Astor's bill permitting peeresses to sit as members of the House of Lords is defeated by that body: 80 to 78.

22.—Confiscated liquor valued at $300,000 is seized from rum ships off New York and Boston.

The British Ambassador, Sir Esme Howard, speaks before the Iron and Steel Institute at New York, advocating thinking in terms of economics and not of politics—in terms of peace and not of fear or revenge.

Finance Minister Caillaux's project to remedy French budget deficit is approved by the Cabinet.

23.—An earthquake kills 278 persons at Toyo-Oka, Japan.

24.—Seventy hitherto unexhibited reptiles are received by the New York Zoölogical Park.

25.—The anti-evolution law of Tennessee causes the indictment of John T. Scopes, a high-school teacher of Dayton, charged with violating it.

The United States Supreme Court unanimously decides that the records of income-tax payments may be published.

27.—Albert B. Fall, Edward L. Doheny, and Harry F. Sinclair are reindicted at Washington for conspiracy to defraud the Government.

The Shipping Board authorizes the sale of 200 vessels for scrapping.

A mine explosion near Coal Glen, N. C., causes imprisonment of 71 miners.

28.—Lease of California Government oil-reserve lands to private interests is declared void by Federal Judge McCormick in suit at Los Angeles, as contracts were secured by fraud and conspiracy.

29.—Aviation experts make report to President on the $19,193,375 appropriation for military construction of aircraft.

Wellesley College celebrates its fiftieth anniversary.

30.—In the Philippines, Governor General Wood begins a million-dollar drive for the leper settlement at Culion Island.

In his Memorial Day address at Arlington Cemetery, President Coolidge urges better local government.

JUNE

1.—In holding invalid the Oregon law requiring public school attendance, the Supreme Court says that "the child is not the mere creature of the State."

A levy for inheritance tax made on gross estates not wholly located within the State is invalid according to the Supreme Court in the case of Pennsylvania against the Frick estate.

The Supreme Court interprets the Sherman Anti-Trust law as not forbidding trade associations for the exchange of information provided there are no transactions.

The Tangier agreement entered into by England, France, and Spain in December, 1923, goes into effect with the United States not a party to it.

2.—J. P. Morgan & Co. loans $50,000,000 to Italian banks of issue.

3.—In his address to the Naval Academy graduating class of 438 men, President Coolidge warns against jingoism and advises promotion of peace by reason rather than by force.

The University of Miami in Florida is projected with an endowment of $15,000,000.

4.—The President orders the Bureau of Mines transferred from the Interior to the Department of Commerce.

5.—For the "open" golf championship of America, William MacFarlane beats Robert T. Jones at Worcester, Mass.

James M. Beck is succeeded by William D. Mitchell as Solicitor General.

In Italy bills are passed by the Chamber placing the Army, Navy, and Aviation under unified command of the General Staff.

6.—The late Charles E. Townsend is succeeded by Porter J. McCumber on the International Joint Commission.

An unprecedented high temperature causes the death of more than 300 persons in the United States.

Canton, China, is occupied by Gen. Yang Hsi-min and the Kuomintang of the late President Dr. Sun Yat-sen are driven out.

In New South Wales the Labor party wins in a general election: 46 seats against 35 held by the Nationalists and 9 by the Progressives.

7.—The Rev. Dr. Ernest M. Stires becomes Bishop coadjutor of the Long Island Episcopal Diocese.

In Italy the twenty-fifth anniversary of the reign of King Victor Emmanuel III. is celebrated.

8.—President Coolidge at the Norse gathering of 100,000 in celebration of the centennial of Norse immigration says that if a national "melting pot" has been found practical, why not a universal one.

Great Britain and France, commenting on German security proposals, take another step toward the Locarno settlement.

10.—Ohio's former prohibition director, J. E. Russell, is convicted of conspiracy to violate the prohibition law.

For the first six months of the year, according to the report of the New York Commissioner of Motor Vehicles, 1,092 licenses were revoked, 686 for drunkenness, while 2,429 were suspended, of which 640 were for serious accidents and 255 for intoxication.

The United Church of Canada is formed by a union of the Presbyterian, Methodist, and Congregational Churches of the Dominion.

11.—For the first time in half a century New Jersey is to have her laws revised by a commission appointed by Chancellor Walker.

Secretary of Labor Davis tries to arrange a conference to settle the plasterer-bricklayer dispute, which has tied up building to the extent of $100,000,000.

In a demonstration against a British armory at Hankow, China, 8 rioters are killed and many are wounded.

In England the Colonial Office is combined with the Dominion Office with an Under Secretary of State for the latter.

12.—"The Cloisters" with the collection of Gothic art in New York City assembled by the sculptor, George Grey Barnard, is purchased by the Metropolitan Museum of Art with $600,000 furnished by John D. Rockefeller, Jr.

14.—Daniel Guggenheim contributes $500,000 toward endowing a School of Aeronautics for Yale University.

16.—Nearly 100 persons are killed or wounded by a railway wreck at Hackettstown, N. J.

17.—Naval transfers: Admiral Robert E. Coontz is succeeded by Admiral Samuel S. Robinson as commander-in-chief of the fleet, with Admiral Charles F. Hughes in command of the battle fleet and Admiral Clarence Williams in charge of the Asiatic station.

Charles E. Hughes, former Secretary of State, is the principal speaker at the 150th celebration of the Battle of Bunker's Hill, Boston, saying that more intelligence and not more democracy is the cure for the ills of the latter.

The Department of Agriculture estimates that there has been a rise of 200 per cent. in farm wages since the Civil War, when workers were paid $10 a month and keep.

18.—On pleading guilty to breaking the Sherman Anti-Trust law in Chicago fifty furniture companies and manufacturers are fined from $1,000 to $5,000 each.

Capt. Roald Amundsen returns to Spitzbergen from his flight to the north pole by aeroplane begun on May 21, having run out of gasoline when within 150 miles of his objective.

At Shanghai a conference between the Allied delegates and the Chinese authorities breaks down.

The 1000th anniversary of the Germanization of the Rhineland is celebrated at Düsseldorf.

19.—The suit against Harry F. Sinclair in the Teapot Dome Naval Oil Reserve lease case is lost by the Government on every point.

The Powers propose a conference to the Peking Government to settle all foreign outstanding questions with China.

20.—Prohibition Director for New Jersey, Adrian G. Chamberlain, resigns after two years.

A nation-wide survey of the Veterans' Bureau is begun by L. Heisler Ball.

The MacMillan expedition to the north pole sails from Wiscasset, Me., for its base at Etah, Greenland; on August 4 it tests its aeroplanes there; on August 27 it is ordered to return, after successful experiments in Arctic flight covering 6,066 miles by navy planes.

21.—In Italy the Chamber, having passed the Fascista program laws, adjourns until autumn.

At the third annual session of the International Chamber of Commerce held at Brussels it is announced that Great Britain, Holland, Sweden, and Switzerland have resumed the gold standard and that Germany, Poland, Latvia, Hungary, Austria, and Danzig have stabilized their currencies.

23.—The Presidential family go to Swampscott, Mass., to pass eight weeks.

In the Federal prohibition campaign State lines are abolished and authority is decentralized.

The White House social secretary, Miss Laura Harlan, resigns after many years of service, her duties being taken over by the ceremonial bureau of the State Department.

At Canton, China, British and French marines firing on rioters kill three.

The French Government agrees to evacuate the Ruhr, in accordance with the Dawes plan, on August 15.

24.—In France, the Chamber adopts a Socialist motion to prosecute the war in Morocco "until peace can be obtained with dignity": 510 to 26.

25.—In Greece, a coup de main overthrowing Premier Michalakopoulos places General Pangalos at the head of the State.

For the first time in 43 years the Liberal Government is overthrown in Nova Scotia.

26.—In New York Governor Smith vetoes the park bill passed by special session.

27.—A bill to sterilize inmates of Wisconsin insane asylums is vetoed by Governor Blaine.

In France, the Caillaux finance measure carrying a 6,000,000 fr. inflation is adopted by the Chamber: 330 to 34.

29.—Ambassador Jacob Gould Schurman is received by President von Hindenburg at Berlin.

A loss of $2,000,000 and 12 lives is sustained when an earthquake destroys part of the business section of Santa Barbara, Calif.

30.—The Italian debt commission, which began negotiations at Washington on June 25 to fund Italy's war debt of $2,000,000,000, adjourns on account of imperfect data and authority.

President John L. Lewis of the United Mine Workers threatens a nation-wide coal strike.

At the conference of Governors begun at Poland Springs, Me., yesterday with fifteen States represented, Governor Ritchie of Maryland charges discrimination in certain income-tax collections.

Prof. Allen Johnson of Yale is to be editor-in-chief of the new Dictionary of American Biography.

JULY

1.—An over-night mail service between New York and Chicago is established by the Postmaster General.

Edward L. Doheny gives an exhaustive exposition of his side of the oil-lease case in an exclusive interview published in The New York Times.

At the close of the fiscal year, June 30, the Treasury surplus is estimated at $250,505,238.

In the Fifth Massachusetts Congress District, Mrs. Nourse Rogers, Republican, succeeds her late husband at a special election, defeating the Democratic candidate, Eugene M. Foss.

Washington sounds London, Paris and Tokio on the execution of the extraterritoriality clause in the Chinese protective treaty of 1922.

2.—A two-year contract with 10 per cent. increase of wages and a five-day week is demanded by Anthracite miners at Scranton, Pa.

The North German Lloyd establishes wireless communication with both shores of the Atlantic.

A Soviet government is established at Canton by Wu Hon-min.

4.—National defense day brings 8,040,395 for military service with a participation of 20,000,000 citizens all over the United States.

5.—With war losses of territory and lives the German population is officially estimated as that of 1908—62,500,000.

6.—A rehearing of the Government suit to cancel the Teapot Dome oil lease is denied by Judge T. B. Kennedy, sitting at Cheyenne, Wyo.

Unconstitutionality of the New York Home Rule law for cities, declared by the Appellate Division of the Supreme Court, tends to make subsequent city ordinances void in 41 cities, particularly affecting those of New York. This opinion is reversed by the Court of Appeals on Sept. 2.

More than 20,000 children are enrolled in the 200 vacation Bible schools of New York City.

Alfred J. Pearson is transferred from Poland to Finland and is succeeded by John B. Stetson as Minister at Warsaw.

7.—At Johns Hopkins University, the Walter Hines Page School of International Relations receives $250,000 from Bernard M. Baruch.

Adolph S. Ochs of The New York Times advocates an endowment of $1,000,000 for the Berry School of Georgia, in address at the Ashville meeting of the Southern Publishers' Association.

8.—New York, instead of London, is selected with the permission of the Home Government for the negotiation of Australia's $100,000,000 loan.

9.—Governor Smith of New York and ex-Governor Nathan L. Miller debate in New York City: The former advocates a bond issue by constitutional amendment of $10,000,000 for ten years; the latter condemns this as a ruinous "blank check" policy.

Charles L. Seya, Latvian Minister at Washington, opens negotiations to fund his country's debt of $6,352,139.

10.—The anti-evolution trial of Scopes begins at Dayton, Tenn., with William Jennings Bryan leading the prosecution. Scopes is convicted on July 21 and fined $100 for teaching that man's origin is contrary to the Bible. Mr. Bryan dies at Dayton on July 26.

New York City is warned by the War Department against dumping the city's refuse so as to pollute the adjacent shores.

In Ecuador, Gen. Francisco Gomez de la Torre seizes power.

11.—President Coolidge and Secretary of State Kellogg hold a conference at the "Summer White House," Swampscott, Mass., at which the administration's Chinese policy is shaped in the light of the Washington treaties of 1922.

12.—Isolation of the cancer germ, by Dr. W. E. Gye and J. E. Barnard, is announced by the British Institute of Medical Research.

A Franco-Spanish agreement is signed at Madrid for political, as well as military, cooperation in Morocco.

13.—Floyd R. Harrison succeeds Frank W. Mondell as director of the War Finance Corporation.

14.—Capt. A. H. McCarthy, heading the amateur Canadian Alpine Club expedition, announces ascent to the summit of Mt. Logan —19,850 ft.—on June 23.

15.—New York City must henceforth register its votes by machines, according to the local Court of Appeals, and the Board of Elections is condemned for not purchasing the machines, which are now ordered by the State Secretary.

John Van A. MacMurray, the new Minister to China, is received by President Tuan Chi-jui, and expounds American policy in China.

Russia's total currency circulation is now $423,000,000, of which $230,000,000 is guaranteed by gold reserve—a figure 45 per cent. below that of 1913.

16.—The Divinity School of the University of Chicago receives a donation of $1,000,000 from John D. Rockefeller.

Giuseppe de Michili becomes President of the International Institute of Agriculture founded by an American in Rome.

17.—Governor General Wood of the Philippines, in addressing the Manila legislature, advises transfer of Railways, mines, and agriculture to private control so as to place the Government on a cash basis.

Protocol with Canada against rum and opium smuggling goes into effect.

In Germany, President von Hindenburg signs the revaluation bill placing State loans redeemable at 2½ of face value.

French losses in Morocco, since the French intervened in April, officially estimated at 707 killed, 2,775 wounded, and 666 missing.

19.—Three batteries of the 62nd Coast Artillery score 25 hits in 8 minutes on airplane target flying at the rate of 75 miles an hour at an elevation of 6,000 ft.

American investments abroad amount to $9,500,000,000, according to estimate of the Department of Commerce.

Balance of Boxer indemnity due the United States, amounting to $6,137,552, is remitted to China for educational purposes.

Quarrel of the Croat Peasants' party with the Yugoslav Government is healed and a Pashitch-Raditch coalition cabinet is sworn in at Belgrade.

21.—Farm incomes for fiscal year, ending June 30, are reported by the Department of Agriculture to amount to $12,136,000,000, an increase of $850,000,000 over 1923-24.

22.—A movement is started by certain religious bodies to enjoin school authorities from paying teachers who dispense evolution in "disrespect for the Holy Bible."

British naval program is announced in regard to annual output of cruisers and submarines.

In Germany, the Luther Cabinet receives a vote of confidence on the security negotiations: 235 to 158.

Foreign Powers at Peking agree on policy: to increase Chinese customs, appoint commission on extraterritoriality, and make a joint inquiry into the Shanghai casualties of May 30.

23.—New Jersey timber lands have been increased 625 acres by distribution of 750,000 trees for idle farm lands—according to report of State Forester, Charles P. Wilber.

New York commuters over the New York, New Haven & Hartford R. R. have to pay an increase of 40 per cent. to the Connecticut line and 20 per cent. beyond.

The Chicago Union Station, begun in 1915, and costing $60,000,000, is dedicated; it disposes of 300 trains a day.

Sigmund Freud becomes chairman of the International Psychoanalytical Foundation of New York.

Morgan Palmer of New York is killed by Manchurian bandits and Dr. Howard of the Peking Rockefeller Hospital of Peking is captured near Harbin.

The Pacific fleet, in two sections, reaches Melbourne and Sydney, Australia, and is enthusiastically received.

25.—Of the Bulgarian wheat crop of 200,000,000 bushels, 33,000,000 are for export.

26.—Abd-el-Krim, the head of the Moroccan Riffs, attempts to get his peace terms based on Riffian autonomy to the French Government.

The Reichstag investigation as to the causes of German defeat in the World War concludes that the deciding factor was the American troops.

27.—Fees for reorganizing the Missouri, Kansas & Texas R. R. are reduced $864,249 by the Interstate Commerce Commission.

In New York, 189 bootleggers receive light fines for pleading guilty and 60 forfeit bonds of $45,000, under the new régime begun by U. S. District Attorney Emory R. Buckner.

28.—The League of Nations Commission makes a report on the Mosul boundary dispute which satisfies neither Great Britain nor Turkey and the League will ask the World Court to settle its competency to decide.

29.—A National Crime Commission is organized in New York by Governor Smith, Elbert H. Gary, and Richard Washburn Child, for which the last named becomes personal investigator.

In New York City, the Board of Transportation recommends 110 omnibus routes covering nearly 300 miles.

Germany and Poland mutually expel 20,000 nationals respectively from the Ruhr and Upper Silesia.

In England, the House of Commons approves the cruiser-building program carrying £58,000,000.

30.—France and England reach a tentative agreement in regard to funding of the former's war debt.

31.—William Jennings Bryan is buried with military honors at Arlington Cemetery, Virginia.

The Roosevelt expedition reaches Yarkand, Eastern Turkestan, en route to Tianshan.

British rubber exports from Ceylon, Malay States, and the Straits Settlements under minimum duty are allowed an increase of 10 per cent. on August 1.

AUGUST

1.—At Detroit a rainfall of 4.71 inches destroys $2,000,000 worth of property.

2.—A real estate boom excites realtors at Rockaway beaches, New York.

American Federation of Labor's executive committee decides against supporting third-party movements.

General Pershing, appointed by the President to head the Tacna-Arica Plebiscite Commission, arrives at Arica.

3.—A diamond syndicate is formed in New York to take over for five years the total production of the De Beers, Premier, Jaegersfontein, Congo, and Angola mines in Africa.

U. S. Marines stationed at Nicaragua since 1912 are withdrawn, leaving Major Calvin B. Carter as head of the native constabulary.

4.—Henry Ford's offer of $1,706,000 for 200 ships to be scrapped is accepted by the Shipping Board: 4 to 1.

Captain Martin E. Trench succeeds Captain Philip Williams as naval Governor of the Virgin Islands.

Franco-Spanish terms for peace in Morocco, imparted by Gen. Primo de Rivera to Abd-el-Krim, assure autonomy under the Sultan at Fez.

5.—Ratifications of the two nine-Power Treaties of 1922 concerning the customs duties and extraterritoriality in China are exchanged in Washington.

General revision of southeastern freight rates is ordered by the Interstate Commerce Commission.

6.—Tammany Hall endorses State Senator James J. Walker for Mayor of New York City, repudiating Mayor Hylan.

Conspiracy against the Prohibition law is charged in indictments against Mayor Quigley of Chelsea, Mass., and 43 citizens.

A serious revolt of Druse tribesmen breaks out in the French mandate of Syria.

The World Alliance for International Friendship through the Churches opens a congress in Stockholm and its delegates from all over the world are addressed by the Swedish Crown Prince.

In Germany, the Reichstag ratifies payments of reparations under the Dawes plan and passes tax bills assuring revenues of 7,000,000,000 gold marks.

7.—The League of Nations passes the report on the Mosul boundary dispute on to the Council with recommendations which satisfy neither the British nor the Turks.

In England, the House of Commons adjourns till November 16.

8.—Strategic points on the Canadian-United States frontier are guarded by 300 men of the Prohibition service.

The Ku Klux Klan holds a parade of 40,000 in Washington led by the Imperial Wizard, Hiram W. Evans of Dallas, Texas.

In Morocco, the French capture Ameryou, which controls the principal approaches to Fez.

10.—In New York, 1,549 automobile licenses were revoked and 3,740 suspended in the last ten months—according to report of the State Bureau of Motor Vehicles.

The International Prison Congress in session in London recommends compulsory education for judges in psychology, sociology, penitentiary science and mental diseases.

Uruguayan-Venezuelan treaty of arbitration dated Feb. 23, 1923, is finally registered with the League of Nations.

In the New Brunswick provincial elections, the Veniot Liberals are defeated by the Baxter Conservatives.

11.—In Cleveland, Ohio, a special election preserves proportional representation by defeating an amendment to the city charter.

A conjunction is made between the French and Spanish forces in Morocco.

12.—F. Traubee Davison is elected head of the National Crime Commission.

A number of persons are killed by a riot at Tientsin, China, and there are 300 arrests in mill riots.

The Belgian Debt Commission at Washington refers to the Brussels Government the terms obtained for funding the war debt of $480,000,000.

14.—Norway observes her sovereignty over the Spitzbergen awarded by the League of Nations, Feb. 9, 1920.

16.—Zionist conference opens in Vienna and is assailed by anti-Semites.

18.—Belgian Debt Funding Commission comes to an agreement at Washington: $727,830,500 to be paid over 62 years, of which amount $556,050,500 is on post-armistice debt and $171,780,000 on pre-armistice.

19.—King Gustav of Sweden opens the Universal Christian Conference at Stockholm with 500 delegates present and the object of finding better means for the application of justice and love in society.

Roy Chapman Andrews reports from Peking the discovery of dinosaur eggs and denies the story of his deportation from Mongolia.

Eight British missionaries, including five women, are captured by bandits at Munyang, China.

21.—Lincoln C. Andrews demarks Federal districts for prohibition enforcement.

An unauthorized seamen's strike breaks out in the ports of the United Kingdom and Australia.

A gain of 42,931 members is claimed by the Presbyterians for the year, making a total of 1,873,859.

23.—In Egypt, seven men are executed for the murder of Sir Lee Stack, Nov. 19, 1924.

24.—In New York, a strike of baggage and expressmen breaks out, with traffic handled by taxicabs and drays until the strike ends on Sept. 16.

25.—The cost of living is 75 per cent. higher than in 1913, according to a report of the Department of Labor.

At Kingsway Theatre, London, "Hamlet" is produced with modern costumes and scenery.

The last French troops are withdrawn from the Ruhr.

26.—Connecticut is boycotted by the Motion Picture Producers and Distributors of America on account of its censorship and tax law.

The submarine S-51 is sunk by the City of Rome off Rhode Island with a loss of 34.

The French war debt to England is arranged by M. Caillaux and Mr. Churchill in London: sixty-two annual instalments of £12,500,000.

Marshal Pétain assumes full command of French operations in Morocco.

27.—United Mine Workers of America declare an anthracite coal strike for Sept. 1, closing 828 mines and putting 158,000 miners out of work.

29.—Great Britain resumes relations with Mexico.

30.—Agent General Gilbert announces that Germany has completed the first annuity under the Dawes plan: 1,000,000,000 gold marks. Under the same plan the United States has received $14,705,154 on Army of occupation account and $3,500,000 to cover American claims now being adjusted by a joint commission at Washington.

A closer supervision of immigration is demanded by a conference of the American and Mexican Federations of Labor which ends at Washington.

31.—A flight to Hawaii is begun by the Navy seaplanes PN-9, Nos. 1 and 3, from San Francisco—2,100 nautical miles. No. 3 is forced down 300 miles from shore and returns, and No. 1, under the command of Commander John Rogers, is lost at sea until found, Sept. 10, by a submarine within fifteen miles of Kauai Island, having sailed 400 miles under jury rig.

SEPTEMBER

1.—Mexico opens a new bank of issue with a capital of 100,000,000 pesos and will issue currency up to 10,000,000 pesos, 51 per cent of the capital being retained by the Government.

2.—The thirty-fifth session of the Council of the League of Nations meets at Geneva to consider the Mosul, Polish-Danzig, Austrian loan, minorities, and mandates questions.

3.—The American-built dirigible Shenandoah is destroyed in storm, near Caldwell, Ohio, with a loss of fourteen.

4.—The Turkish Government closes Dervish monasteries, abolishes the titles of Dervish and Sheik, and imposes European dress on civil officials.

Chester S. Long succeeds Charles Evans Hughes as president of the American Bar Association.

5.—Col. William Mitchell, formerly Assistant Chief of the Army Air Bureau, censures the Government's air administration in a manner which later brings about his conviction by a court-martial.

7.—The Sixth Assembly of the League of Nations opens at Geneva and elects Senator Raoul Dandurand of Canada President.

10.—The President and family return to Washington from Swampscott, Mass.

11.—Mount builders' skeletons, together with implements and ornaments are found near Bainbridge, Ohio.

Capital punishment is abolished in New South Wales by legislative enactment.

14.—Hamilton Holt becomes President of Rollins College, Winter Park, Fla.

Maine voters approve of the Bay of Fundy project to utilize tides for power.

15.—Bolsheviki make a raid on Tatar-Burnar, Bessarabia, from across the Dniester and are dispersed by Rumanian troops; the local sympathizers are placed on trial and some are convicted.

16.—Secretary of State Kellogg cancels the passport of the Communist member of the British Parliament, Shapurji Saklatvala, who would have come as a delegate to the Inter-Parliamentary Union at Washington.

At the sixth meeting of the League of Nations Assembly, begun the 7th inst., a Dutch proposal for a conciliation court is rejected; on the 19th, Tewfik Bey, Turkish Foreign Minister, repudiates promise to accept the Council's decision in regard to the Mosul question; the Council accepts the Danzic report; the sixth session of the Assembly ends on Sept. 26 with the reelection of Belgium, Brazil, Spain, Sweden, Czechoslovakia, and Uruguay to non-permanent seats on the Council, which adjourns its thirty-fifth session two days later.

Turkey begins the codification of its laws, taking the Swiss civil code and many articles from the Commercial Code of Germany and the Criminal Code of Italy.

17.—In New York, 500 Chinese are arrested under the Exclusion Act, defied by the Hip Sing Tong and the On Leong Tong.

The Peking Government cancels American and Japanese wireless concessions, the former dating from 1923 and the latter from 1895.

21.—The Shenandoah Naval Board of Inquiry takes testimony at Lakehurst, N. J., as to the loss of the airship.

Col. William Mitchell is relieved of his duties as Eighth Corps air officer at San Antonio, Texas, and ordered to Washington.

National Air Board appointed by the President to determine national defense meets at Washington and takes testimony from high navy, army, and aviation officials. It hears Col. Mitchell on Sept. 29 advocate an independent department for aviation.

22.—A decision of the Philippine Supreme Court allows Insular official funds to be used for independence propaganda—the decision holds that the dictum of the Insular Auditor B. F. Wright may be appealed to the local courts.

23.—The second daughter of the King and Queen of Italy, Princess Mafalda, marries Philip of Hesse.

24.—The late Ambassador Bancroft is succeeded at Tokio by Charles MacVeagh.

29.—Robert M. LaFollette, Jr., wins with sweeping majorities in a Wisconsin special Senatorial election.

30.—Capt. Anton Heinen, the German airship constructor, testifying before the Shenandoah Naval Board of Inquiry, blames the commander for the disaster as well as the removal of valves.

OCTOBER

2.—The Spanish in Morocco occupy Ajdir, Abd-el-Krim's capital.

3.—The Navy airplane carrier Lexington is launched at Quincy, Mass.

In Baltimore, the General Baking Corporation is organized with Paul H. Helms as President.

5.—The French debt commission, under Finance Minister Caillaux, which arrived in Washington on Sept. 23, sails for home with a temporary adjustment which is later rejected by the French Government.

8.—Col. Mitchell declines to testify in the Shenandoah inquiry on the ground that it might prejudice him before his prospective court-martial.

10.—The Czechoslovak debt of $115,000,000 is adjusted at Washington: $3,000,000 to be paid the United States for 18 years and $6,000,000 for 44 years.

13.—John W. Weeks retires as Secretary of War and is succeeded by Acting Secretary Dwight F. Davis.

At Locarno, Switzerland, Great Britain, France, Italy, and Belgium adopt a security treaty with Germany and Poland and Czechoslovakia negotiate defensive pacts with France and arbitration pacts with Germany, as do France and Belgium, and Germany is to enter the League but will not be obliged to execute its military directions on account of her disarmed condition. These important treaties were completed and initialed on Oct. 16, by the Foreign Ministers of all the signatories, and signed at London with great ceremony, Dec. 1.

15.—Col. Hanford MacNider succeeds Dwight F. Davis as Assistant Secretary of War, the latter having been made Secretary.

The "Pirates" win the World Series from the "Senators" by four games out of seven.

William Green is re-elected President of the American Federation of Labor.

16.—According to the Census Bureau, the number of active farms in the country have been reduced by 75,735 since 1920, with a decrease in New York of 4,433. There is an increase in the New England States.

The Prince of Wales reaches London after his tour to Africa and South America.

19.—The Greco-Bulgarian frontier quarrel begins by the Greeks invading the Bulgarian border near Demirhissar on the ground that Macedonian Comitajis had raided a Greek village—Greece issues an ultimatum and Bulgaria appeals to the League of Nations, the Council of which is quickly summoned by President Briand. There is an investigation by the Council, which on Dec. 16, it finds Greece to blame and orders her to pay an indemnity to Bulgaria.

27.—The French Cabinet resigns, and, after dropping M. Caillaux as Finance Minister, is reconstructed by Premier Painlevé, receiving a vote of confidence on Nov. 3: 221 to 13.

28.—Col. William Mitchell is placed on trial before a court-martial on the charge of having broken certain Articles of War by his criticisms; he pleads not guilty.

30.—In Syria, Damascus is bombarded by the French, doing great damage to the historic quarter, bodies of slain Moslems are paraded as an example, and General Sarrail, the French High Commissioner, is recalled.

31.—New York City adopts a 1926 budget carrying $437,000,000.

In Persia, the National Assembly (the Mejliss) deposes the Shah, who is in Paris, and the Kajar dynasty, by a vote of 80 to 5. The Premier becomes dictator and then Shah. He is a Persian Cossack named Reza Khan who has risen to power from the ranks.

NOVEMBER

2.—A new Italian debt funding commission, headed by Count Volpi, Minister of Finance, opens negotiations at Washington. On Nov. 12 it agrees that Italy shall pay $2,407,000,000 in sixty-two years, and on the signing of the agreement, two days later, pays the first installment of $5,000,000, not due till June.

3.—In the State and municipal elections the outstanding features are: New York ratifies four constitutional amendments and reduces its Republican majority in the Assembly; in Ohio, three constitutional amendments are defeated; Democratic Governors win in New Jersey and Virginia by large pluralities; in New York City, James J. Walker (Dem.) is elected mayor by 400,000 plurality, while Boston elects its first Republican mayor in eighteen years—Malcolm E. Nichols with a plurality of 21,000.

4.—In New Zealand, the prohibition referendum is defeated: 310,000 to 275,000.

5.—The Anti-Saloon League holds a conference in Chicago on the "enforcement crisis."

7.—After a flight in one plane of 34,000 miles from Rome to Tokio and return, Commander Francesco de Pinedo is welcomed back in the Eternal City.

8.—New York City celebrates the publication of the first local newspaper by William Bradford, in 1725.

10.—New York notables give a dinner to Charles E. Hughes, who eloquently advocates the United States joining the World Court.

13.—The Mexican Chamber passes the Land bill regulating Article 27 of the Constitution in a way to arouse resentment in Washington in the following year.

14.—Australian elections return Stanley M. Bruce to power in spite of strong radical opposition.

15.—In the Czechoslovak elections the coalition Government wins 159 seats and the Opposition controls 141.

16.—At Prague a new element, "Dvimigan," is identified by Profs. Heyrovsky and Dolejsek.

16-27.—In China, Chang Tso-lin's Shanghai troops mutiny in favor of Wu Pei-fu operating from Peking, and Feng Yu-hsiang threatens his old ally, Chang, who retreats on Mukden. The Peking conference agrees to the American-Chinese plan for abolition of the likin—a tax on inter-provincial commerce.

17.—Mrs. Margaret Ross Lansdowne, widow of the Commander of the Shenandoah, testifies before the Court of Inquiry that a naval officer (Capt. Paul Foley) made an effort to direct her testimony in regard to her husband's opinion of the fatal flight. The Court exonerates Capt. Foley on Nov. 20.

19.—Charles E. Hughes is made chairman of the New York State Reorganization Commission for short-ballot reform.

20.—In Italy, the Senate passes the bill against secret societies which particularly applies to Freemasonry.

21.—The World Court recognizes the competency of the League's Council to render a decision in the Mosul case, although Turkey is not to be handicapped by the presence of the British member.

23.—Col. Mitchell takes the stand in his own defense arguing that his attacks on the air administrations were justified and supported by the evidence of witnesses.

27.—For settlement of the anthracite strike, Governor Pinchot of Pennsylvania proposes a five-year agreement with no price increase, while a commission shall decide on the wage increase. This is accepted by John L. Lewis for the striking miners but rejected by the mine owners, who refuse to negotiate on that basis, asking an immediate resumption of work at pre-strike wages and arbitration, which the miners continue to decline.

In Italy, the Chamber, which reconvened on Nov. 18 and passed bills strengthening the power of the Premier (one making him responsible only to the King and another requiring his approval on all projects of law) abolishes local self-government for 7,500 communities—communes of fewer than 5,000 population, over which podeste are to be placed responsible to Rome.

29.—Prussia grants William of Hohenzollern, as former King of Prussia, 30,000,000 marks, 180,000 acres of land, three palaces in Berlin and a palace at Babelsburg, besides other real estate in the capital.

For his work in inspiring the Locarno treaties the British Foreign Secretary, Austen Chamberlain, is made a Knight of the Order of the Garter by King George.

30.—State laws were increased 13,018, in the present year, and 32 per cent. of the 40,980 bills presented in 39 states were adopted.

The Secretary of Labor's annual report shows that in the fiscal year, 1924-25, 294,314 immigrants were admitted as compared with 706,896 for the previous year.

DECEMBER

1.—Prohibition Commissioner Andrews decrees regulations still further limiting the sale of sacramental wines.

2.—The President's Aircraft Board of experts recommends assistant secretaries of War, Navy, and Commerce to handle aviation, thus rejecting Col. Mitchell's proposal for a unified air Department.

A civilian Cabinet is formed by General Primo de Rivera in Spain from the party of the dictatorship—the Patriotic Union.

3.—Col. Merch Stewart is appointed commandant at West Point.

The Irish Boundary Commission's decision leaves the North Ireland-Free State border in statu quo, but the British Government assumes certain monetary obligations for damages and pensions.

4.—Aristide Briand, who returned to power in France after Premier Painlevé's defeat on Nov. 22, has his bill for an inflation of 7,500,000,000 frs. passed by the Senate—205 to 26—and the bill becomes law.

6.—The German-American Claims Commission settle Lusitania claims to a total of $2,409,443, making a total of all claims awarded, $167,663,102.

7.—The Massachusetts Attorney General investigates charges of political favoritism among the courts of Boston.

First session of the Sixty-ninth Congress opens and Nicholas Longworth (Rep., Ohio) is elected Speaker of the House: 229 to 173.

8.—The President's message, urging tax reduction, the sale of the Muscle Shoals plant and Government ships, legislation control of public utilities in emergencies, and undersecretaries for the War, Navy, and Commerce Departments, as recommended by his expert Board for the control of aviation, is read in each House.

9.—The President's annual budget message calls for $3,494,222,308 and estimates the 1926-27 surplus at $330,307,894.

10.—In his annual report Secretary of the Treasury Mellon declares that over 80 per cent. of national expenditures are for past wars.

In Italy, the Chamber passes a law making the Fasciste labor syndicates and the employers associations the sole parties to be heard in industrial disputes and making arbitration by them obligatory.

13.—In Pennsylvania, Governor Pinchot calls a special session of the legislature to revise the coal, banking, building, and loan laws and approves the Tri-State project for the utilization of Delaware River water.

15-31.—In China, the Japanese transfer 1,000 troops from Korea to Mukden and send 3,500 to protect the South Manchurian railway—the International Commission of Inquiry into the Shanghai riots of May 30 blames the police of the foreign settlement and the municipal council gives $75,000 to the relatives of the victims—Gen. Chang Tso-lin defeats Kuo Sung-ling and executes him as a mutineer—Feng Yu-hsiang, the "Christian General" who controls Peking, captures Tientsin—the former Anfu leader, Gen. Hsu Shu-cheng, is assassinated by Captain Lu Cheng-wu.

The League Council decides the Mosul boundary question in favor of the British mandate of Iraq.

16.—In France, Senator Paul Doumer is made Finance Minister and Senator Berenger is appointed Ambassador at Washington with authority to reopen the debt negotiations begun by Joseph Caillaux in September.

17.—In Switzerland, Henri Haeberlin is elected President of the Confederation.

A Russo-Turkish defensive treaty in resentment for the Locarno treaties and the Mosul settlement is signed in Paris.

Col. Mitchell is found guilty on all counts: suspended for five years with loss of pay and allowances.

The Pope confers the red hat on five Cardinals, including Patrick O'Donnell of Armagh, Ireland.

18.—The House passes the Revenue bill reducing taxes $325,736,000 including $193,575,000 from the income-tax.

21.—Senator Pepper (Rep., Penn.) reverses himself and approves of the World Court for the United States.

22.—In Philadelphia, Brig. Gen. Smedley D. Butler, having resigned from the Marine Corps, is dismissed by Mayor Kendrick as Director of Public Safety and succeeded by George W. Elliott.

Russian trade figures show, for 1925, imports from the United States, in spite of this country's non-recognition, three times the value of those of 1913, with cotton leading at $50,000,000, food stuffs at $33,000,000, and machinery at $14,000,000.

Secretary Hoover condemns those countries which seek to restrain trade by monopolizing their natural products and starts a movement for rubber plantations in American dependencies and for the conservation of the rubber tire industry.

The State Census estimates the population of New York City at 5,873,356, an increase of 253,308 in five years.

23.—The Pope, in an encyclical, institutes a new festival—the Feast of the Kingdom of Christ.

24.—Frederick C. Hicks, who recently dropped dead in a Washington theatre, is succeeded by Howard Sutherland of West Virginia as Alien Property Custodian.

Pope Pius XI ends the Holy Year.

26.—An American opera sung in English is acclaimed in Chicago: "A Light from St. Agnes" by W. Franke Harling.

29-31.—The coal conference at New York comes to no settlement in the anthracite strike, although Alvan Markle submits a plan that considers the public's point of view.

River floods in Belgium and France cause vast loss of property and a few lives.

29.—Indictment against Senator Burton K. Wheeler of Montana is quashed at Washington.

A bit of unofficial gossip in a Stockholm paper is commented on seriously all over the world; it is that Princess Astrid, niece of the King of Sweden, will visit Buckingham Palace, London, as the prospective fiancée of the Prince of Wales.

31.—The German Reich has acquired $220,000,000 of the Hohenzollern properties, while it is estimated that, aside from their thrones, the war losses to the family were $25,000,000.

In Rumania, Crown Prince Carol renounces succession and family and is succeeded as heir apparent by his four-year old son, Michael.

NECROLOGY

A

Aasen, Neils W., 48.—Stoughton, Wis., December 30; inventor of a hand grenade.

Adams, John Wolcott, 51.—New York, June 3; artist.

Adams, Richard H., 89.—New York, July 13; German-American importer.

Agnus, Gen. Felix, 86.—Baltimore, Md., October 31; Civil War veteran and editor.

Aiken, Prof. Charles F., 62.—Boston, July 8; author and educator.

Ailes, Milton E., 58.—Harpers Ferry, W. Va., October 30; financier and banker.

Alexandra, Queen Dowager of England, 80.—Sandringham House, Norfolk, Eng., November 20; mother of George V and widow of Edward VII.

Alice, Dowager Princess of Monaco, 67.—Paris, France, December 22; divorced wife of late Prince of Monaco.

Allen, George Y., 32.—Monmouth Junction, N. J., November 12; radio expert.

Allen, James Lane, 75.—New York, February 18; novelist.

Ames, Charles H., 31.—Bellefonte, Pa., October 2; air-mail pilot.

Ammons, Elias Milton, 65.—Denver, Col., May 20; former Governor of Colorado.

Amory, John M., 82.—Larchmont, N. Y., November 17; former stock broker.

Anderson, Roy S., 46.—Peking, March 12; authority on Chinese affairs.

Atha, Benjamin, 82.—Newark, N. J., October 24; pioneer steel manufacturer and banker.

Atkinson, George W., 80.—Charleston, W. Va., April 4; former Governor of West Virginia.

Atwood, Col. James M., 90.—Plymouth, Mass., October 12; Civil War veteran who directed land battery in Monitor-Merrimac fight.

Audsley, George A., 86.—Bloomfield, N. J., June 20; architect and author.

Audubon, Maria R., 82.—Salem, N. Y., December 22; writer, granddaughter of J. J. Audubon.

B

Bacon, Mrs. Nathaniel T., 63.—Peacedale, R. I., October 26; welfare worker.

Baedeker, Fritz, 81.—Leipsic, Germany, April 9; travel-guide publisher.

Bailly-Blanchard, Arthur, 69.—Montreal, Can., August 24; U. S. Minister to Haiti.

Baker, Dr. James H., 76.—Denver, Col., September 10; President Emeritus of the University of Colorado.

Baldwin, Frank S., 86.—Morristown, N. J., April 8; inventor.

Baldwin, James, 83.—South Orange, N. J., August 30; author of juvenilia.

Baldwin, Gen. Theodore A., 86.—Chattanooga, Tenn., September 2; soldier and Indian fighter.

Bancroft, Edgar Addison, 67.—Karuizawa, Japan, July 28; United States Ambassador to Japan.

Bandholtz, Harry H., 60.—Constantine, Mich., May 7; Major-General U. S. A.

Baratelli, Charles C., 40.—Milford, Conn., November 11; sculptor.

Barbe, Dr. Waitman, 61.—Baltimore, Md., October 30; Professor of English in University of West Virginia.

Barber, Donn, 53.—New York, May 29; architect.

Barney, Hiram, 39.—New York, July 4; banker and international lawyer.

Barney, J. Stewart, 57.—New York, November 22; architect and landscape painter.

Bartlett, Paul W., 59.—Paris, France, September 20; sculptor.

Bartlett, Willard, 78.—Brooklyn, January 17; former Chief Judge of New York Court of Appeals.

Basford, George M., 60.—New York, October 26; railroad publicist.

Baxter, Col. A. E., 80.—New York, October 6; Republican leader and lawyer.

Beardsley, William H., 73.—New York, December 13; President of the Florida East Coast Railway.

Beauchamp, Rev. Dr. William M., 95.—Syracuse, N. Y., December 13; Episcopal clergyman, historian and archæologist.

Beck, Sir Adam, 68.—London, Ontario, August 15; Canadian political leader and industrialist.

Beck, William, 55.—Chicago, November 30; baritone of the Chicago Opera.

Bedford, Alfred C., 60.—East Norwich, New York, September 21; Chairman of Board of Standard Oil Company of New Jersey.

Beekman, Katherine M. (Mrs. William B. Beekman), 76.—New York, December 18; former President of the Society of Colonial Dames (N. Y.).

Beggs, John I., 78.—Milwaukee, Wis., October 17; traction leader and pioneer in electric transit.

Begin, Cardinal Louis Nazairo, 85.—Quebec, Can., July 19; Catholic Primate of Canada and Archbishop of Quebec.

Belding, Alvah N., 86.—Rockville, Conn., December 18; merchant.

Belknap, Dr. Eugene W., 58.—Newburgh, N. Y., November 21; member of Medical Faculty of Syracuse University.

Belknap, Dr. John D., 70.—Syracuse, N. Y., October 28; evangelist.

Bell, Dr. Richard Dana, 38.—Somerville, Mass., December 6; biologist.

Bellows, George Wesley, 42.—New York, January 8; painter.

Benson, Arthur Christopher, 63.—London,

June 16; English poet, essayist and biographer.

Benziger, Nicholas C., 66.—Summit, N. J., October 18; publisher of Catholic books.

Bernetta, Clara.—New York, September 13; singer and teacher.

Bernthaler, Carl, 46.—Pittsburgh, Pa., November 2; organist, pianist and orchestra leader.

Bevins, Charles L., 81.—Newport, R. I., December 20; architect.

Bicknell, G. A., 78.—New Albany, Ind., January 27; Rear Admiral U. S. N.

Bicknell, Thomas W., 91.—Providence, R. I., October 6; historian, educator and lecturer.

Bird, Charles A.—Hornell, N. Y., November 11; theatrical manager.

Birmingham, James F., 58.—New York, November 12; publisher.

Bishop, Dr. Elwell A., 73.—Brooklyn, N. Y., December 21; educator.

Blakely, Gilbert S., 60.—New York, October 20; educator.

Blanchard, Charles A., 77.—Chicago, December 20; educator and President of Wheaton College.

Bolling, Mrs William.—Washington, November 21; mother of Mrs. Woodrow Wilson.

Booth, John R., 98.—Ottawa, Ontario, December 8; pioneer Canadian lumber manufacturer.

Borden, Gen. George P., 81.—New York, April 26; Indian fighter.

Borland, Reuben, 57.—Yonkers, N. Y., December 12; merchant.

Borst, Henry V., 68.—Albany, N. Y., November 26; former New York Supreme Court Justice.

Bourgeois, Léon, 74.—Oger, France, September 29; former Premier of France and "Spiritual Father" of the League of Nations.

Bourn, Augustus O., 92.—Bristol, R. I., January 29; former Governor of Rhode Island.

Bowers, George M., 63.—Martinsburg, W. Va., December 8; former Congressman from West Virginia.

Bowne, Jacob T., 78.—Springfield, Mass., October 15; pioneer in Y. M. C. A. education.

Boyden, Albert A., 50.—New York, May 2; editor and humanitarian.

Bradley, James, 67.—New York, August 20; builder and contractor.

Breintnall, Gen. R. Heber, 83.—Belmar, N. J., July 3; soldier.

Bridgman, Rev. Frederick B.—Portland, Me., August 23; missionary in South Africa.

Brine, Mrs. Mary Dow.—New York, July 20; author and poet.

Bright, Fred E., 68.—Greenwich, Conn., October 7; inventor and manufacturer.

Brill, Dr. Nathan E., 65.—New York, December 13; professor of Clinical Medicine at College of Physicians and Surgeons, Columbia University.

Britton, Edward E., 61.—Washington, November 9; newspaper correspondent and publicist.

Broadhead, Sheldon B., 79.—Jamestown, N. Y., August 29; industrialist.

Browne, Henry E., 79.—Brooklyn, N. Y., September 25; organist of Plymouth Church in pastorate of Henry Ward Beecher.

Brunner, Arnold W., 67.—New York, February 14; architect.

Bryan, William Jennings, 65.—Dayton, Tenn., July 26; statesman, orator and reformer.

Buck, Rev. Florence, 45.—Boston, October 12, Unitarian cleric and editor.

Burgess, Rt. Rev. Frederick, 72.—Garden City, L. I., N. Y., October 16; Protestant Episcopal Bishop of Long Island.

Burke, Thomas, 77.—New York, December 4; Former Chief Justice of the Territory of Washington.

Burke, William J., 63.—Pittsburgh, Pa., November 7; former State Senator and Congressman from Pennsylvania.

Burnett, Edward, 76.—Milton, Mass., November 5; former Congressman.

Burton, Dr. Ernest D., 69.—Chicago, May 26; President of the University of Chicago.

Burton, Marion L., 50.—Ann Arbor, Mich., February 18; President of the University of Michigan.

Cable, George W., 80.—St. Petersburg, Fla., January 31; author.

Busbey, L. White, 73.—Washington, October 31; Republican politician and newspaper correspondent.

Buswell, Frederick C., 65.—Hackensack, N. J., November 28; insurance authority.

Butler, Benjamin F., 66.—New York, November 2; agriculturist, merchant and member of old New York family.

Butsch, Dr. John L., 47.—Cloverland, Ind., September 8; surgeon and first holder of degree of Doctor of Philosophy in Surgery.

C

Cadwalader, John, 81.—Philadelphia, March 11; lawyer and capitalist.

Cady, Chauncey M., 71.—Stratford, Conn., November 5; former missionary and college professor.

Calkins, Dr. Wolcott, 93.—Newton, Mass., January 1; clergyman and author.

Camp, Walter, 65.—New York, March 14; physical culture exponent.

Campbell, Benjamin H., 77.—Elizabeth, N. J., April 3; educator.

Campbell, Palmer, 68.—Bernardsville, N. J., December 15; financier and publicist.

Campbell, Prince L., 64.—Eugene, Ore., August 14; president of the University of Oregon.

Campbell, Rev. Thomas J., 77.—Monroe, N. Y., December 14; Jesuit, historian and educator.

Canniff, William H., 77.—Cleveland, O., September 17; former President of the Nickel Plate Railroad.

Cannon, Dr. George E., 56.—Jersey City, N. J., April 6; Negro leader.

Carroll, Rev. John P., 61.—Friebourg, Switzerland, November 3; Bishop of the Catholic Diocese of Helena, Montana.

Carter, Dr. Henry R., 73.—Washington, September 14, Assistant Surgeon-General of the United States.

Carter, Prof. Thomas F., 43.—New York, August 6; head of Chinese Department of Columbia University.

Carter, Major-Gen. William H., 74.—Washington, May 25; soldier.

Casellas, Fernando M., 83.—New York, May 9; sculptor.

Chamberlaine, Gen. William, 54.—Paris, June 9; soldier.

Chandler, Charles F., 88.—Hartford, Conn., August 25; former President of Department of Health of New York City and teacher in chemistry.

Chapman, Carlton T., 64.—New York, February 12; marine and landscape painter.

Cholmondeley, Mary.—Kensington, England, July 15; English novelist.

Christie, Alexander, 75.—Portland, Ore., April 6; Catholic Archbishop of Oregon.

Clark, William Andrews, 86.—New York, March 2; industrialist, art collector and former U. S. Senator from Montana.

Clark, William T., 60.—Brooklyn, September 14; actor.

Clarke, Dr. John Mason, 68.—Albany, N. Y. May 29; geologist.

Clarke, Joseph I. C., 78.—New York, February 27; journalist, poet and playwright.

Clay, Albert T., 58.—New Haven, Conn., September 14; Laffan Professor of Assyriology and Babylonian Literature at Yale University.

Cleveland, Capt. Benjamin D., 81.—New Bedford, Mass., June 21; whaling captain; naturalist and explorer.

Clutz, Rev. Jacob Abram, 77.—Stockholm, Sweden, September 7; former President of the Lutheran General Synod in the United States.

Coffin, William A., 70.—New York, October 26; artist and art editor and critic.

Colby, Frank Moore, 60.—New York, March 3; editor of *International Encyclopedia*.

Cole, Samuel Valentine, 73.—Norton, Mass., May 6; President of Wheaton College and poet.

Coles, J. Ackerman, 82.—Scotch Plains, N. J., December 16; surgeon, philanthropist and art collector.

Comes, Washington I., 86.—Brooklyn, N. Y., November 23; marine insurance underwriter.

Conwell, Dr. Russell H., 82.—Philadelphia, December 6; clergyman, author and educator.

Coolidge, J. Randolph, 97.—Boston, November 10; oldest alumnus of Harvard and member of old Boston family.

Coolidge, Louis A., 63.—Milton, Mass., May 31; financier and former Assistant Secretary of the Treasury.

Cooney, Frank H., 83.—Chicago, December 26; founder of *Detroit Mail*.

Cornish, Leslie C., 68.—Augusta, Me., June 24; former Chief Justice of Maine.

Cox, Mrs. William R.—Richmond, Va., December 25; former President of National Society of Colonial Dames of America.

Crago, Col. Thomas S,. 59.—Waynesburg, Pa., September 11; former Congressman from Pennsylvania.

Craig, Joseph E., 80.—Washington, June 21; Rear Admiral U. S. N.

Craig, William B., 48.—Selma, Ala., November 27; former Congressman from Alabama.

Cramp, Theodore, 86.—Philadelphia, Pa., January 9; shipbuilder.

Cray, John J., 61.—New York, September 15; detective and New York police official.

Cromwell, Seymour L., 54.—Morristown, N. J., September 16; lawyer, broker and former President of New York Stock Exchange.

Crosby, William O., 75.—Boston, December 31; geologist, author and former professor at Massachusetts Institute of Technology.

Cross, Dr. Andrew J., 68.—White Plains, N. Y., April 9; optometrist.

Culberson, Charles A. 69.—Washington, March 19; former Senator from Texas.

Culver, Helen, 93.—Lake Forest, Ill., August 19; philanthropist and co-founder of Hull House with Jane Addams.

Curtis, Gen. Arthur R., 82.—Milwaukee, Wis., April 8; soldier.

Curtis, Charles Densmore, 49.—Rome, Italy, June 8; professor of Archæology in American Academy in Rome.

Curtis, Paul Allan, 76.—New York, June 17; sportsman and a founder of the New York Athletic Club.

Curzon of Kedleston, Marquis, 66.—London, March 20; British statesman.

D

Da Gama, Domicio.—Rio de Janeiro, Brazil, November 8; former Brazilian Ambassador at Washington.

Dallam, Frank B., 56.—New York, November 9; newspaper writer.

D'Arcy, Hugh A., 82.—New York, November 11; poet and dramatist.

Darling, Samuel Taylor, 53.—Palestine, May 22; physician and medical writer.

Davies, John C., 67.—Camden, N. Y., January 10; political leader and former Attorney-General of New York.

Davis, Gen. Charles E. L. B., 81.—Atlantic City, N. J., June 1; soldier.

Davis, Rev. Charles E., 72.—Westfield, Mass., September 10; clergyman and educator.

Davis, Dr. George R., 78.—Tientsin, China, June 25; Methodist missionary.

Day, David T., 66.—Washington, April 16; geologist.

de Chelvinski, Jan V., 74.—New York, November 2; painter of portraits and military subjects.

Deering, James, 66.—At sea, September 21; former President of International Harvester Company.

Degnon, Michael J., 67.—Kew Gardens, L. I., April 22; bridge builder.

De Reszke, Jean, 75.—Nice, France, April 3; operatic tenor.

Dey, Richard V., 91.—New York, October 21; California pioneer.

De Young, Meichel H., 75.—San Francisco, February 15; newspaper publisher and California politician.

Dick, J. Henry, 74.—Islip, L. I., N. Y., September 30; banker, realtor and leader in sugar refining industry.

Dickerson, Denver S., 52.—Carson City, Nev., November 28; former Governor of Nevada.

Dickie, Dr. Samuel, 74.—Albion, Mich., November 5; President Emeritus of Albion College and prohibition supporter.

Dillingham, Albert C., 77.—Norfolk, Va., December 6; Rear Admiral U. S. N., retired.

Dillon, James E., 63.—New York, October 13; former Deputy Police Commissioner of New York.

Dismukes, John T., 78.—St. Augustine, Fla., December 4; banker and philanthropist.

Dixon, Dr. Amzi Clarence, 70.—Baltimore, Md., June 14; Baptist clergyman and author.

Dodd, Brig. Gen. George A., 73.—Orlando, Fla., June 29; soldier.

Doremus, Dr. C. A., 74.—New York, December 2; chemist.

Doyle, Robert M., 72.—Cocoanut Grove, Fla., December 15; Admiral, U. S. N.

Draper, Paul, 38.—New York, February 16; singer.

Dresel, Ellis L., 54.—Pride's Crossing, Mass., September 19; lawyer and diplomat.

Drew, Mrs. Sidney, 35.—Los Angeles, Cal., November 3; actress.

Duke, James Buchanan, 68.—New York, October 10; tobacco industrialist and philanthropist.

Dyer, Rev. Edward R., 71.—Baltimore, Md., November 3; President of St. Mary's Seminary in Baltimore.

E

Earling, Albert J., 77.—Milwaukee, Wis., November 10; railroad pioneer and former Chairman of Chicago, Milwaukee & St. Paul Railroad.

Eastman, John C., 63.—Chicago, January 25; newspaper publisher.

Eaton, Charles W.—Haverhill, Mass., July 22; Civil Engineer.

Ebbets, Charles H., 66.—New York, April 18; sportsman.

Ebert, Friedrich, 54.—Berlin, February 28; Provisional President of Germany.

Eckard, Rev. Leighton W., 81.—Princeton, N. J., November 16; formerly a missionary in China.

Eddy, Gen. John C., 72.—Brooklyn, January 30; soldier.

Edwards, Charles J., 58.—Brooklyn, January 24; patron of aëronautics.

Egan, Frank J., 47.—Darien, Conn., September 8; banker and railroad financier.

Elliott, John, 68.—Charleston, S. C., May 26; artist.

Ewing, Rev. Dr. James C. R., 71.—Princeton, N. J., August 20; President of the Presbyterian Board of Foreign Missions.

Eyre, Lincoln, Sr., 68.—Philadelphia, October 29; lawyer and clubman.

F

Farabee, Dr. William C., 60.—Washington, Pa., June 24; South American explorer.

Farwell, Julia H.—New Haven, Conn., November 21; educator.

Fisher, Frank L., 72.—Knoxville, Tenn., December 31; banker.

Fitzgerald, George F., 89.—New York, December 8; editor and newspaper correspondent.

Flammarion, Camille, 83.—Juvisy, France, June 14; astronomer and philosopher.

Fletcher, Andrew, 61.—New York, November 29; industrialist and shipbuilder.

Fleischmann, Julius, 52.—Miami, Fla., February 5; capitalist and sportsman.

Floyd-Jones, William C., 69.—New York, December 6; broker and member of old New York family.

Foley, Thomas F., 73.—New York, January 15; Tammany leader.

Ford, Dr. Henry J., 74.—Summit, Pa., August 29; educator and former member of Interstate Commerce Commission.

Foster, J. Stanley, 48.—New York, August 14; banker.

Foster, John E., 60.—Newark, N. J., April 21; New Jersey jurist.

French, Sir John, Earl of Ypres, 72.—Deal Castle, Eng., May 22; soldier.

Fuller, Col. Ezra B., 75.—Fort Leavenworth, Kan., September 17; Indian fighter.

Furman, Job R., 60.—Chicago, September 7; engineer.

G

Gardener, Mrs. Helen H., 71.—Washington, July 26; author, educator and social worker.

Garnsey, William S., 70.—Gloversville, N. Y., November 15; former president of the New York State Homeopathic Medical Society.

Gates, Francis H., 85.—Chittenango, N. Y., July 6; banker and legislator.

Gates, Peter G, 70.—New York, July 13; archæologist and pioneer lumberman.

Gaughey, Rollin, 74.—Portland, Ore., November 17; editor and artist.

Gay, Robert H., 49.—New York, November 25; lawyer.

Geil, Dr. William E., 60.—Venice, Italy, April 12; explorer and evangelist.

Gericke, Wilhelm, 80.—Vienna, Austria, October 29; orchestral leader and former conductor of the Boston Symphony Orchestra.

Gessler, Dr. Theodore A. K., 84.—Miami, Fla., December 4; Baptist clergyman.

Gielow, Henry J., 69.—Detroit, Mich., June 24; yacht designer and naval architect.

Gifford, Prof. Ralph W., 58.—New York, December 3; Professor of Law at Columbia University.

Glasscock, William Ellsworth, 62.—Morgantown, W. Va., April 12; Governor of West Virginia.

Goldbeck, Walter D., 43.—New York, October 13; portrait painter.

Goodrich, Caspar F., 78.—Princeton, N. J., December 26; Rear Admiral U. S. N., retired.

Goold, Paul P., 50.—New York, December 7; artist.

Gordon, Rev. John, 82.—Philadelphia, August 2; Dean Emeritus of Temple University Theological Seminary.

Gorham, Henry B., 72.—Devon, Conn., November 5; former government engineer.

Grant, Louis Bedell, 58.—Brooklyn, June 17; lawyer and diplomat.

Graves, J. Temple, 68.—Washington, D. C., August 8; editor and writer.

Gray, George, 85.—Wilmington, Del., August 7; Federal jurist and former U. S. Senator from Delaware.

Greer, Lawrence, 53.—New York, December 14; Chairman of the Western Maryland Railway.

Griffin, Solomon B., 73.—Springfield, Mass., December 11; editor and journalist.

Grinnell, Ben, 63.—New York, September 27; actor.

Grinstead, Mrs. Minnie J.—Liberal, Kan., December 24; first woman legislator of Kansas.

Grout, Josiah, 84.—Newport, Vt., July 19; former Governor of Vermont.

Gunderson, Dr. Hendrik, 68.—Chicago, November 5; Dean of Norwegian Baptist Divinity House of the University of Chicago.

H

Haberer, Dr. Joseph V., 70.—Utica, N. Y., December 7; botanist and physician.

Haggard, Sir Henry Rider, 69.—London, May 14; novelist.

Hale, Matthew, 43.—Washington, August 30; former head of Progressive Party and associate of President Roosevelt.

Hall, Daniel M., 82.—Columbus, O., October 19; former Commander of National G. A. R.

Hallock, George D., 63.—New York, June 25; banker.

Halstead, Dr. Joseph T., 107.—Breckenridge, Mo., September 13; oldest physician and oldest Mason in the United States.

Halsted, Richard H., 71.—New York, April 29; art patron and broker.

Halsted, Major William P., 88.—New York, October 12; Civil War veteran prominent in military organization.

Harber, Giles Bates, 76.—Youngstown, O., December 29; Rear Admiral, U. S. N., retired.

Harriman, Mrs. Alice, 64.—Hollywood, Cal., December 24; author and publisher.

Harriman, Job, 64.—Sierra Madre, Cal., October 26; lawyer and former Presidential nominee of Socialist Party.

Harriman, Joseph, 60.—Newport, R. I., December 2; clubman and social leader.

Harrington, John M., 50.—Freeport, N. Y., September 17; lawyer and authority on land-claim litigation.

Harris, Dr. John H., 78.—Scranton, Pa., April 4; President of Bucknell University.

Harrison, Thomas, 97.—Washington, November 3; employee of U. S. Naval Observatory for 73 years.

Harriss, Charles L., 50.—New York, September 27; cotton broker.

Harte, Dr. Richard H., 70.—Vicksburg, Miss., November 14; surgeon.

Hartfield, William, 62.—New York, July 11; leader in shipping.

Hatfield, Thomas F., 66.—Hoboken, N. J., October 8; librarian.

Haviland, Augusta (Mrs. Charles Chappell), 59.—New York, October 25; actress.

Hawley, John Mitchell, 79.—Washington, February 9; Rear Admiral U. S. N.

Hayden, Henry Whiting, 71.—New York, January 7; lawyer.

Hayford, John Fillmore, 57.—Chicago, March 10; engineer and geographer.

Haynes, Elwood, 68.—Kokomo, Ind., April 13; inventor of first American automobile.

Heath, Brig. Gen. Thomas, 91.—Loveland, O., October 18; Civil War veteran and participated in Sherman's March.

Hedges, Job E., 63.—Atlantic City, N. J., February 22; lawyer and party leader.

Heinrich, Julius J. F., 73.—Baldwin, L. I., January 2; horticulturist.

Henry, Dr. Alexander, 74.—Philadelphia, July 15; Presbyterian clergyman and Sunday School leader.

Henshall, Dr. James A., 89.—Cincinnati, O., April 4; authority and writer on angling.

Herrmann, Theodore L., 57.—New York, December 24; lawyer.

Herron, Prof. George, 63.—Munich, Bavaria, October 9; educator and socialist.

Herzog, Paul M., 51.—New York, November 12; lawyer and real estate authority.

Heyman, Dr. Marcus B., 58.—New York, October 7; physician and Superintendent of Manhattan State Hospital for the Insane.

Hicks, Frederick C., 53.—Washington, December 14; Alien Property Custodian and former Congressman from New York.

Higginson, Francis Lee, 83.—Pride's Crossing, Mass., August 19; banker and philanthropist.

Hildreth, Dr. John L., 86.—Winchester, Mass., November 27; former Dean of Tufts Medical School.

Hill, Percival S., 63.—New York, December 7; president of American Tobacco Company.

Hillebrand, Prof. W. F., 70.—Washington, February 7; chemist.

Hilprecht, Herman V., 66.—Philadelphia, March 19; educator and archæologist.

Hirsch, Morris J., 70.—New York, November 10; lawyer and former Republican leader.

Hirshon, Charles, 63.—New Rochelle, N. Y., October 9; Hebrew philanthropist.

Hirst, Dr. John C., 50.—Philadelphia, October 4; gynecologist.

Hoag, John, 78.—Ossining, N. Y., October 12; horticulturist and banker.

Hoch, E. W., 76.—Marion, Kan., June 1; former Governor of Kansas.

Hodgkins, Henry H., 71.—Syracuse, N. Y., November 8; engineer.

Hoe, Richard M, 74.—New York, December 22; banker.

Hoke, W. A., 73.—Raleigh, N. C., September 13; former Chief Justice of North Carolina Supreme Court.

Hopkins, Thomas S., 70.—Washington, April 17; international lawyer.

Hoppin, Dr. Joseph C., 54.—Boston, January 30; archæologist.

Howland, Samuel S., 75.—Monte Carlo, April 27; turfman.

Hoyt, Edward C., 71.—Stamford, Conn., November 28; pioneer in leather industry.

House, Frederick B., 68.—New York, November 23; City Magistrate and publicist.

Howe, Frank E., 66.—Troy, N. Y., November 19; banker.

Houghton, Gen. H. B., 81.—Montgomery, Ala., November 4; Confederate officer and veteran.

Hulse, Charles E., 84.—Bellport, N. Y., November 17; veteran sea captain.

Hunt, Rev. Arthur P., 50.—New York, July 3; professor of Christian Ethics at General Theological Seminary.

Hunt, A. R., 69.—Dedham, Mass., November 2; early partner of Andrew Carnegie in steel industry.

Hunt, Charles J., 64.—Rockland, Maine, September 28; Justice of Supreme Court of Ohio.

Hurel, Gustave, 64.—Woonsocket, R. I., October 26; French-Canadian editor.

Hussey, Clarence L., 42.—Providence, R. I., December 5 ; bridge engineer.

Husted, James W., 54.—New York, January 2 ; member of House of Representatives from New York.

I

Ingalls, Charles H., 82.—West New Brighton, S. I., N. Y., September 28 ; banker.

Irons, Henry C., 62.—Granby, Conn., November 13 ; contractor and builder.

J

Jaeger, Walter, 62.—Allendale, N. J., July 12 ; German-American editor.

Jaegers, Albert, 57.—Suffern, N. Y., July 22 ; sculptor.

James, Charles E., 73.—Chattanooga, Tenn., October 2 ; realtor and financier.

James, Dr. Edmund Janes, 70.—Covina, Cal., June 17 ; former President of University of Illinois.

James, Horace D., 72.—Orange, N. J., October 16 ; actor.

Jeffery, John B., 80.—San Francisco, Cal., September 19 ; journalist and Spanish-American War veteran.

Jewett, John Howard, 82.—Syracuse, N. Y., September 18 ; editor and author of juvenilia.

Johnson, Bolling A., 62.—Chicago, December 19 ; editor and publisher.

Johnson, Henry L., 55.—Washington, September 10 ; negro leader prominent in Republican politics.

Johnson, Wilbur S., 68.—East Orange, N. J., September 3 ; insurance and accounting expert.

Jones, Augustine, 89.—Newton Highlands, Mass., September 10 ; lawyer, educator and author.

Jones, Gilbert E., 37.—Morristown, N. J., October 24 ; banker and broker.

Joyce, John P., 49.—Monroe, N. Y., July 7 ; lawyer and prison reformer.

Junod, Charles F., 46.—Pelham, N. Y., December 8 ; banker.

K

Keiley, Benjamin J., 78.—Atlanta, Ga., June 17 ; retired Roman Catholic Bishop in Georgia.

Keith, Boudinot, 66.—New York, October 24 ; lawyer and reformer.

Keith, Walter W., 56.—Baltimore, Md., September 1 ; sportsman.

Kelley, Patrick H., 58.—Washington, September 11 ; former Congressman from Michigan.

Kellogg, John M., 72.—Ogdensburg, N. Y., January 16 ; New York jurist.

Kemmerer, Mahlon S., 82.—Atlantic City, December 29 ; coal operator and charity worker.

Kent, Charles Foster, 57.—New Haven, Conn., May 3 ; scholar.

Keyes, Charles H., 66.—New York, January 16 ; President of Skidmore College.

Kimball, Dr. Charles O., 80.—New York. December 2 ; formerly President of the New York Dental Society.

King, Mrs. Henrietta M., 93.—Kingsville, Tex., March 31 ; ranch owner.

King, James S., 73.—Montclair, N. J., April 8 ; etcher and painter.

Kingsley, Rose G., 80.—Ramsgate, Eng., August 18 ; author, daughter of Charles Kingsley.

Kirby, John, Jr., 75.—Dayton, O., December 29 ; former President of the National Association of Manufacturers.

Kirk, Robert H., 53.—Summit, N. J., November 24 ; Controller of the Rockefeller Foundation.

Knight, Charles Wesley, 53.—New York, August 16 ; philanthropist.

Knight, William H., 90.—Los Angeles, Cal., May 12 ; scientist and publisher.

Knox, Alfred C., 78.—Pittsburgh, Pa., December 10 ; banker.

Kruger, Albert, 59.—Glen Springs, N. Y., August 12 ; philanthropist.

Kruttschnitt, Julius, 70.—New York, June 15 ; formerly Chairman of Southern Pacific Railroad.

Kuropatkin, Alexei Nikolaievitch, 76.—Shemshurino, Russia, January 23 ; Russian General.

L

Ladd, Edwin F., 65.—Baltimore, Md., June 22 ; U. S. Senator from North Dakota.

La Follette, Robert M., 70.—Washington, June 18 ; Republican Radical Leader and U. S. Senator from Wisconsin.

Lane, John, 70.—London, February 3 ; publisher.

Lansdowne, Lieut. Commander Zachary, 36.—Ava, O., September 3 ; commanding officer of *Shenandoah.*

Lawlor, Charles B., 73.—New York, May 31 ; song writer.

Lawlor, Thomas F., 81.—Brooklyn, N. Y., November 14 ; Civil War veteran and scout under Gen. Custer.

Lawrence, Malcolm R., 68.—New York, November 16 ; lawyer.

Lawson, Thomas W., 68.—Boston, February 7 ; financier and promoter.

Lawson, Victor F., 74.—Chicago, August 19 ; publisher and journalist.

Lee, Amy, 63.—Philadelphia, December 25 ; actress.

Lee, Robert Emmons, 47.—Brooklyn, N. Y., November 28 ; author and translator of Scandinavian literature.

Leeds, Warner M., 55.—New York, March 25 ; industrialist.

Leggett, Rev. Dr. William J., 77.—Nyack, N. Y., October 28 ; Vice-President of the Reformed Church of the U. S.

Lewis, Ada, 52.—Hollis, L. I., N. Y., September 24 ; musical comedy actress.

Libbey, Edward D., 71.—Toledo, O., November 13 ; glass manufacturer and art connoisseur.

Lincoln, Charles Z., 76.—Glen Ridge, N. J., July 26 ; lawyer and writer on legal subjects.

Lindabury, Richard V., 74.—Bernardsville, N. J., July 15 ; corporation lawyer.

Little, William Nelson, 72.—Mountain Lakes, N. J., January 4 ; Rear Admiral U. S. N.

Livingston, Crawford, 77.—New York, November 16 ; railroad man and capitalist.

Livingston, Robert L., 49.—New York, April 12; banker and broker.

Livingstone, William, 81.—Detroit, Mich., October 17; banker and Great Lakes vessel owner.

Logue, J. Washington, 62.—Overbrook, Pa., August 27; lawyer and former Congressman from Pennsylvania.

Lord, Arthur, 74.—Boston, April 10; lawyer and antiquarian.

Lounsbury, Phineas C., 81.—Ridgefield, Conn., June 22; former Governor of Connecticut.

Lowell, Amy, 51.—Brookline, Mass., May 12; poet.

Lund, George, 58.—Morristown, N. J., October 18; actor.

Lvoff, Prince, 60.—Paris, March 6; former Russian Premier.

M

Madden, John H., 49.—New York, January 22; engineer.

MacAlarney, Miss Emma L., 54.—Mount Peasant, N. Y., September 12; educator and writer.

MacKenzie, Rev. Robert, 79.—New York, September 15; Presbyterian clergyman.

Macon, Robert B., 66.—Marvell, Ark., October 12; former Congressman from Arkansas.

Mahan, Dennis H. 76.—Washington, May 29; Commodore U. S. N.

Main, Hubert Platt, 87.—Newark, N. J., October 7; composer and editor.

Malter, Dr. Henry, 59.—Philadelphia, April 4; Hebrew scholar and educator.

Mangin, Charles E. E.—Paris, May 12; French General.

Manning, Col. James H., 71.—Albany, N. Y., July 4; Banker and editor.

Mansfield, Robert E., 58.—Indianapolis, Ind., September 18; formerly in the United States Consular Service.

Margot, Antoinette.—Washington, December 28; co-founder with Clara Barton of American Red Cross.

Marksbury, J. W., 57.—Columbus, O., November 5; journalist and publicist.

Marshall, Dr. John, 69.—Philadelphia, January 5; chemist.

Marshall, Thomas Riley, 71.—Washington, June 1; statesman and former Vice-President of the United States.

Martine, James Edgar, 74.—Miami, Fla., February 26; former U. S. Senator from New Jersey.

Massey, William Ferguson, 69.—Wellington, N. Z., May 10; Premier of New Zealand.

Masters, Harding W., 80.—Springfield, Ill., November 13; publicist and father of Edgar Lee Masters.

Mather, Frederick G., 81.—Stamford, Conn., August 30; author and editor.

Matteson, Charles, 85.—Providence, R. I., August 14; former Chief of Justice of Rhode Island.

Mattice, Asa M., 71.—New York, April 19; engineer.

Mayer, Julius M., 60.—New York, November 30; Federal jurist and former Attorney-General of New York.

Maynard, Walter E., 53.—New York, March 4; art patron.

McAdam, George H., 71.—New York, November 2; lawyer and writer.

McCann, James F., 56.—San Antonio, Tex., August 30; painter.

McClain, Frank B., 61.—Lancaster, Pa., October 11; former Lieutenant Governor of Pennsylvania.

McConnell, William J., 85.—Moscow, Idaho, March 30; first U. S. Senator from that state.

McCormick, Medill, 48.—Washington, February 25; U. S. Senator from Illinois.

McCran, Thomas F., 49.—Paterson, N. J., September 19; former Attorney-General and Republican Nominee for Governor of New Jersey.

McDonald, Charles F., 67.—Clifton Springs, N. Y., September 19; formerly Chairman of State Democratic Committee in New Jersey.

McGee, John F., 64.—Minneapolis, Minn., February 15; federal jurist.

McIlhenny, John D., 59.—Philadelphia, November 23; president of Pennsylvania Museum and School of Industrial Art.

McQueen, James W., 50.—New York, April 20; steel industrialist.

Meek, Kate, 87.—New York, September 4; actress.

Meloney, Major William B., 47.—Pawling, N. Y., December 7; journalist and World War veteran.

Merriman, Dr. L. F., 67.—Hornell, N. Y., July 8; musician.

Merriman, Mansfield, 77.—New York, June 7; pioneer in the development of technical education in U. S.

Messenger, North O., 60.—Washington, June 15; political writer.

Metcalf, Rev. Joel H., 59.—Portland, Me., February 21; clergyman and astronomer.

Metcalf, Willard Leroy, 67.—New York, March 9; landscape painter.

Meyer, Eugene, 82.—New York, January 17; banker.

Miles, Gen. Nelson A., 85.—Washington, May 15; soldier and former highest in command in the United States Army.

Milholland, John E., 65.—New York, June 30; publicist.

Miller, Dr. Rufus W., 68.—Philadelphia, Pa., October 11; Reformed Church clergyman and Sunday School leader.

Milner, Viscount, 71.—Canterbury, Eng., May 13; British statesman.

Miner, Dr. James, 90.—Winchester, Ill., September 18; surgeon and diagnostician.

Mitchell, John J., 52.—Boston, September 13; former Congressman from Massachusetts.

Moeller, Henry, 75.—Cincinnati, O., January 5; Catholic Archbishop of Cincinnati.

Moon, Virginia B., 81.—New York, September 11; actress.

Moore, Edmond H., 62.—Youngstown, O., December 6; lawyer and Democratic National Committeeman from Ohio.

Moore, Dr. John W., 64.—Baltimore, Md., June 3; clergyman and educator.

Morgan, Alfred Lee, 52.—Providence, R. I., July 4; professor of Economics in Roberts College, Constantinople.

Morgan, Edward M., 69.—New York, January 9; Postmaster of New York.

Morgan, Mrs. Jane Grew.—Glen Cove, L. I., August 14; wife of J. P. Morgan.

Morgan, James L., 80.—Brooklyn, October 27; former president of General Chemical Company.

Morris, Clara (Mrs. F. C. Harriot), 79.—New Canaan, Conn., November 20; actress.

Morris, Rev. James R., 63.—Passaic, N. J., July 10; clergyman and missionary.

Morse, Edward S., 87.—Salem, Mass., December 29; Zoölogist and formerly professor at Imperial University at Tokio.

Morton, G. Nash, 84.—New York, December 14; Presbyterian lay missionary.

Morton, Martha, 59.—New York, February 18; playwright.

Motz, C. Henry, 55.—Cincinnati, O., November 14; newspaper man.

Mueller, Carl, 63.—Chicago, July 12; author of Municipal Traction Law.

Munsey, Frank A., 71.—New York, December 22; publisher and merchant.

Murrah, William B., 73.—Memphis, Tenn., March 5; educator and Methodist Episcopal churchman.

Murray, Gen. Arthur, 74.—Washington, May 12; soldier.

Myers, Carl E., 83.—Atlanta, Ga., November 30; pioneer in aëronautics.

N

Neely, Rev. Thomas B., 84.—Philadelphia, Pa., September 4; former Methodist Episcopal Bishop of Philadelphia.

Nightingale, Dr. Augustus F., 82.—Evanston, Ill., December 4; educator.

Niles, Theophilus E., 59.—Providence, R. I., November 8; newspaper editor.

Norris, Henry M., 77.—Cincinnati, O., December 24; mechanical engineer and inventor.

Norris, W. E., 78.—Torquay, Eng., November 20; novelist.

O

Ochsner, Dr. Albert J., 67.—Chicago, July 25; surgeon and former president of American College of Surgeons.

O'Donaghue, Rev. Denis, 77.—Louisville, Ky., November 7; former Catholic Bishop of Diocese of Louisville.

Olin, Stephen H., 78.—New York, August 6; lawyer and former Acting President of Wesleyan University.

O'Neill, Hugh, 53.—Denver, Colo., October 8; editor and journalist.

O'Neill, James T., 60—Brooklyn, N. Y., September 21; New York City Magistrate.

Ostrom, Dr. Homer I., 73.—Boston, April 5; homeopathic surgeon.

Ottinger, Moses, 83.—New York, November 18; realty man, philanthropist and a founder of the Jewish Theological Seminary.

P

Pach, Gotthelf, 73.—New York, April 17; photographer.

Page, Carroll S., 82.—Hyde Park, Vt., December 3; formerly Governor of Vermont and U. S. Senator.

Paine, Ralph D., 53.—Concord, N. H., April 29; author and war correspondent.

Pam, Max, 60.—New York, September 14; corporation lawyer and philanthropist.

Parker, Charles D., 98.—River Falls, Wis., December 28; former Governor of Wisconsin.

Parker, Gen. Daingerfield, 92.—Washington, February 25; soldier.

Parker, Edward M., 70.—New Orleans, La., October 21; Protestant Episcopal Bishop of New Hampshire.

Parker, Stephen H., 73.—Florence, Italy, May 17; portrait painter.

Parmly, Randolph, 72.—Red Bank, N. J., August 16; lawyer.

Parrish, Clara Weaver.—New York, November 12; painter and stained glass window designer.

Parsons, Herbert, 55.—Pittsfield, Mass., September 16; Republican leader and former Congressman from New York.

Patterson, Frank L., 67.—Irving, N. Y., November 5; President of the Seneca Nation of Indians.

Peck, Dr. Frederick B., 65.—Easton, Pa., November 2; professor of Mineralogy and Geology at Lafayette College.

Peck, Dr. Paul F., 52.—Chicago, November 20; professor of History at Northwestern University.

Penfield, Edward, 59.—Beacon, N. Y., February 8; illustrator.

Penrose, Dr. Charles B., 63.—Washington, February 27; physician and scientist.

Petit, Douglas E., 67.—Syracuse, N. Y., December 21; Vice-President of the New York State Savings Bank Association.

Philipp, Emanuel L., 64.—Milwaukee, Wis., June 15; former Governor of Wisconsin.

Phipps, Gen. Frank H., 81.—Washington, March 28; soldier and ordnance expert.

Pierson, Andrew N., 75.—Cromwell, Conn., October 29; horticulturist.

Plummer, William A., 59.—Laconia, N. H., November 29; New Hampshire jurist.

Pomroy, Henry K., 71.—New York, December 22; financier and former president of the New York Stock Exchange.

Pond, Frederick E. (Will Wildwood), 69.—New York, November 1; sports writer.

Ponton, John, 96.—Jersey City, N. J., November 8; editor and inventor.

Post, George A., 71.—Somerville, N. J., October 31; manufacturer and chairman of the Railroad Committee of the U. S. Chamber of Commerce.

Pound, George W., 60.—Buffalo, N. Y., December 2; corporation lawyer.

Powell, Edward A., 87.—Syracuse, N. Y., November 19; agriculturist and cattle breeder.

Powers, Patrick T., 63.—Belmar, N. J., August 27; promoter of sports.

Prentice, John H., 51.—Montauk, L. I., N. Y., October 1; sportsman and broker.

Presser, Theodore, 78.—Philadelphia, October 28; music publisher.

Putnam, Edwin, 85.—Portsmouth, N. H., December 31; Rear Admiral, U. S. N., retired.

Q

Quayle, William A., 65.—Baldwin, Kan., March 9; Bishop of Kansas and Chautauqua lecturer.

Quick, Herbert, 64.—Columbia, Mo., May 10; novelist.

R

Raby, George, 96.—St. Louis, Mo., November 10; architect.

Ralston, Samuel M., 67.—Indianapolis, Ind., October 14; U. S. Senator from Indiana and former Governor of Indiana.

Rama VI, 45.—Bangkok, Siam, November 26; King of Siam.

Ransom, Dr. Brayton H., 46.—Washington, September 18; chief of Zoölogical Division of the Bureau of Animal Industry.

Rawlinson of Trent, Baron, 63.—Delhi, India, March 27; British soldier.

Ray, George W., 70.—Norwich, N. Y., January 10; Federal jurist.

Raymond, Henry W., 76.—Philadelphia, February 18; journalist.

Read, Major Harmon P., 65.—Albany, N. Y., December 22; heraldic authority.

Reals, Grace.—New York, August 31; actress and singer.

Reed, Joseph Rea, 90.—Council Bluffs, Ia., April 2; former Chief Justice of Iowa Supreme Court.

Reid, Daniel G., 66.—New York, January 17; financier.

Reid, Mrs. Lizzie E., 71.—Yonkers, N. Y., December 5; first American woman golfer.

Reid, Willard P., 63.—Bay Shore, L. I., N. Y., October 12; lawyer and politician.

Reinhardt, Col. R. S., 63.—Lincolnton, N. C., September 11; former president of American Cotton Manufacturers' Association.

Reuterdahl, Henry, 54.—Washington, December 20; naval artist.

Reynolds, Major A. D., 78.—Bristol, Va., September 23; Confederate veteran and former candidate of Prohibition Party for Vice-President.

Rhodes, Dr. John E., 74.—Chicago, September 2; physician and author.

Richardson, William O., 46.—New York, August 12; Brigadier-General and leader in New York National Guard.

Ritchey, Daniel P., 55.—Paris, France, November 5; hotel promoter.

Robi, Armand, 38.—New York, September 4; playwright and composer.

Robinson, Prof. Henry H., 62.—New Haven, Conn., October 20; member of Yale University faculty and Director of the Connecticut Geological and Natural History Survey.

Rodgers, Raymond P., 76.—Monte Carlo, December 28; Rear Admiral, U. S. N., retired, and former president of Naval War College.

Rogers, Gen. Harry L., 58.—Philadelphia, December 12; aide to Gen. Pershing.

Rogers, John Jacob, 43.—Washington, March 29; member of U. S. House of Representatives from Massachusetts.

Rogers, Miss Josephine C., 79.—New York, September 9; teacher.

Rosenbloom, Sol, 56.—New York, November 16; banker and philanthropist.

Rossiter, Clinton L., 65.—Brooklyn, N. Y., November 12; banker and former president of the Brooklyn Rapid Transit Company.

Rossner-Eddy, Augusta, 65.—Staten Island, N. Y., September 21; actress.

Russel, Edgar, 63.—New York, April 27; Major-General, U. S. A.

Russell, Louis A., 71.—Newark, N. J., September 5; conductor, composer and author.

Ryan, Patrick, 72.—New York, November 7; contractor and one of the builders of the Manhattan Bridge.

Ryon, Dr. Walter G., 51.—Poughkeepsie, N. Y., December 5; alienist and Superintendent of the Hudson River State Hospital.

S

Sage, John H., 78.—Boston, August 16; ornithologist.

Saks, Horace A., 43.—New York, November 27; merchant.

Sampson, Alden, 72.—New York, January 6; author and naturalist.

Sanderson, George A., 57.—Washington, April 24; secretary of United States Senate.

Sandow, Eugene, 58.—London, Eng., October 14; leader in physical culture.

Sargent, John Singleton, 69.—London, April 15; artist.

Sayre, Lucius E., 78.—Lawrence, Kan., June 20; Dean of School of Pharmacy of Kansas University.

Scarborough, Dr. H. Sargeant, 55.—Waterbury, Conn., September 22; Methodist clergyman.

Schifferli, F. X., 76.—Buffalo, N. Y., September 8; Catholic editor and journalist.

Schuyler, James E., 65.—Amityville, L. I., June 21; former battalion commander in 107th Infantry.

Scudder, Mrs. Sophia Weld.—Vellore, India, August 30; Reformed Church in America missionary in India.

Seelye, Mrs. Henrietta Chapin.—Northampton, Mass., September 12; widow of Dr. L. Clark Seelye, first president of Smith College.

Semple, Rev. Henry C., 72.—New Orleans, La., June 27; Catholic theologian.

Senft, Dr. F. H., 68.—Tenafly, N. J., November 24; clergyman and secretary of the Christian and Missionary Alliance.

Seward, Dr. F. W., 80.—Goshen, N. Y., October 1; specialist in mental diseases.

Shandelle, Rev. Henry, 77.—Washington, November 27; Dean Emeritus of Graduate School of Georgetown University.

Shattuck, Albert R., 72.—Lenox, Mass., November 4; banker.

Shaw, Capt. David, 86.—Cleveland, O., November 13; horse owner and sportsman.

Shears, Dr. Joseph H., 61.—New York, October 1; sanitation expert.

Sheldon, E. S., 74.—Cambridge, Mass., October 16; Harvard Professor Emeritus of Etymology.

Sherman, Gordon E., 71.—Morristown, N. J., November 28; former Assistant Professor of International Law at Yale University.

Sherwood, Gen. Isaac R., 90.—Toledo, O., October 15; Civil War veteran and former Congressman from Ohio.

Shields, G. O., 79.—New York, November 10; editor, publisher and game protection advocate.

Shipp, Capt. John F., 80.—Chattanooga, Tenn., September 18; Confederate veteran and Quartermaster-General of United Confederate Veterans.

Siedle, Edward, 66.—Port Chester, N. Y., March 30; musical director.

Sim, John R., 76.—New York, December 22; Professor Emeritus of Mathematics, College of City of New York.

Simonson, Selie, 76.—Jersey City, N. J., November 11; composer and former symphony conductor of Gilbert and Sullivan operas.

Skinner, Alanson B., 39.—Tokio, N. D., August 17; anthropologist.

Slade, Mrs. William G., 78.—New York, September 5; civic leader and club woman.

Sloane, A. Baldwin, 52.—Red Bank, N. J., February 21; composer.

Smedley, J. Harvey, 84.—Woodmere, N. Y., July 5; banker and originator of public school savings-bank system.

Smith, Eugene H., 72.—Boston, May 9; Dean of Harvard Dental School.

Smith, Dr. George W., 88.—Washington, December 27; former President of Trinity College.

Smith, John W., 80.—Baltimore, Md., April 19; former Governor and U. S. Senator from Maryland.

Smith, Mrs. J. O. D. (Temple Oliver), 89.—Johnstown, N. Y., November 16; author.

Snider, Dr. Denton J., 84.—Kirkwood, Mo., November 25; psychologist and author.

Snow, Elbridge G., 84.—New York, November 7; insurance specialist.

Smyth, Dr. Newman, 81.—New Haven, Conn., January 6; clergyman and theological writer.

Spackman, William, 78.—New York, November 18; banker.

Spaeth, Dr. Reynold A., 38.—Bangkok, Siam, June 26; physiologist.

Spiering, Theodore, 53.—Munich, Bavaria, August 11; conductor and composer.

Stanton, Theodore, 74.—New Brunswick, N. J., March 1; journalist.

Steinke, Dr. Frank, 40.—Elizabeth, N. J., November 5; dermatologist and World War veteran.

Stettinius, Edward R., 60.—Locust Valley, L. I., September 3; banker, partner in J. P. Morgan & Company.

Stevenson, George, 80.—Groton, Conn., September 28; banker.

Stillman, Mrs. Sarah Rumrill, 73.—New York, November 28; mother of James A. Stillman and widow of James Stillman.

Stoddard, William O., 90.—Madison, N. J., August 30; former private secretary to Abraham Lincoln.

Stoeckel, Carl, 66.—Norfolk, Conn., November 1; music patron.

Stone, Mrs. Mary M., 82.—Lincoln, Eng., September 28; widow of Gen. Roy Stone, U. S. A., and Federal army nurse at Gettysburg.

Stone, Warren Stanford, 65.—Cleveland, O., June 12; labor leader.

Stoner, Col. James Buchanan, 64.—New York, July 22; leader in public health.

Storm, George L., 44.—Greenwich, Conn., July 11; industrialist.

Stratton, Margaret E., 81.—Stratford, Conn., December 17; former Dean of Wellesley College.

Streckfus, Capt. John, 69.—St. Louis, Mo., October 12; Mississippi River navigator.

Strong, Ann Hervey.—Boston, June 17; nurse and teacher.

Studdiford, Dr. William E., 58.—New York, November 17; surgeon and authority in diseases of women.

Sturgis, William P., 85.—Brooklyn, N. Y., November 7; banker.

Sun Yat Sen, 58.—Peking, March 12; South China leader.

Swan, William L., 75.—Baltimore, Md., November 8; agriculturist and yachtsman, first Commodore of the Seawanhaka Corinthian Yacht Club.

T

Taylor, Henry Fitch, 72.—Plainfield, N. H., September 10; artist.

Taylor, Henry R., 56.—New York, December 5; capitalist.

Taylor, Mrs. Marie Hansen, 96.—Partenkirchen, Bavaria, July 9; widow of Bayard Taylor.

Thayer, Dr. George A., 85.—Cincinnati, O., October 4; Unitarian clergyman and reformer.

Thayer, Nathaniel A., 44.—New York, September 10; civil engineer.

Thebaud, Paul G., Sr., 59.—New York, June 21; merchant and sportsman.

Thomas, Albert D., 84.—Crawfordsville, Ind., November 13; jurist.

Thomas, Edith M., 71.—New York, September 13; poet and journalist.

Thomas, Dr. Henry M., 64.—Summit, Pa., June 21; neurologist.

Thomas, John Lloyd, 67.—New York, February 6; humanitarian.

Thompson, Charles T., 66.—New York, April 18; journalist.

Thompson, Vance, 62.—Nice, France, June 5; writer.

Thrasher, Samuel P., 67.—Chicago, September 11; vice crusader.

Ticknor, Thomas B., 76.—Brookline, Mass., June 21; publisher.

Tod, J. Kennedy, 72.—Sound Beach, Conn., June 2; banker.

Todd, Henry Alfred, 69.—New York, January 3; professor of Romance Philology at Columbia University.

Tooker, L. Frank, 71.—Greenwich, Conn., September 17; editor and author.

Towell, Henry, 69.—Milwaukee, Wis., October 31; editor and publisher.

Tracey, James F., 71.—Altamont, N. Y., September 19; former Associate Justice of the Supreme Court of the Philippine Islands.

Treat, M. C., 85.—Pasadena, Cal., December 19; oil and gas operator, and philanthropist.

Trowbridge, S. Breck Parkman, 62.—New York, January 29; architect.

Tryon, Dwight W., 75.—South Dartmouth, Mass., July 1; painter.

Tuckerman, Alfred, 77.—Newport, R. I., May 25; bibliographer and scientific writer.

Tyler, James Hoge, 78.—East Radford, Va., January 3; former Governor of Virginia.

U

Upham, Frederick W., 64.—Palm Beach, Fla., February 15; Treasurer of Republican National Committee.

V

Vail, Henry Hobert, 86.—Woodstock, Vt., September 2; publisher of educational books.

Vallette, Dr. Marc F.—Brooklyn, N. Y., November 21; educator and editor.

Vanderbilt, Reginald C., 44.—Portsmouth, R. I., September 4; horseman and social leader.

Vanderpoel, George B., 79.—Chatham, N. J., October 16; merchant and publicist.

Van De Water, Dr. George Roe, 70.—New York, March 15; Episcopal clergyman.

Van Ingen, Gilbert, 55.—Princeton, N. J., July 7; paleontologist and geologist.

Van Rensselaer, Dr. Howard, 66.—Washington, March 31; physician and teacher of medicine.

Van Rensselaer, Mrs. John King, 76.—New York, May 11; author and antiquarian.

Van Sant, Howard D., 60.—Dunfermline, Scotland, September 1; American Consul at Dunfermline.

Van Slyke, Warren C., 51.—New York, April 7; lawyer.

Viviani, Philippe René, 61.—Paris, France, September 7; French orator and former Premier.

W

Warner, John De Witt, 73.—New York, May 27; lawyer and writer.

Williams, Pardon C., 82.—Watertown, N. Y., January 18; New York jurist.

Wadlin, Horace G., 74.—Winchester, Mass., November 5; former librarian of the Boston Public Library.

Wall, Rev. Francis H., 73.—New York, September 22; Roman Catholic clergyman and foe of Ku Klux Klan.

Ward, Gen. Henry H., 82.—Wellesley Hills, Mass., November 16; Civil War veteran.

Ward, Reginald H., 63.—New York, November 20; banker, clubman and Papal Count.

Waters, Dr. Henry J., 59.—Kansas City, Kan., October 26; agricultural expert and editor.

Watson, Dr. Edward W., 82.—Philadelphia, November 20; physician and writer.

Watson, Dr. William P., 73.—Jersey City, N. J., July 17; former President of American Pediatric Association.

West, G. Bernard, 77.—Los Angeles, Cal., November 2; newspaper editor and writer.

Wheeler, Everett Pepperell, 84.—New York, February 8; reformer.

Wheeler, Dr. Henry, 90.—Ocean Grove, N. J., April 25; clergyman and writer.

Wheeler, Mrs. Mary.—Rochester, N. Y., August 18; pioneer suffragist.

Wheelwright, John T., 69.—Boston, December 23; lawyer, author and one of founders of Harvard Lampoon.

White, Rev. Dr. Edwin A., 70.—Belgrade Lakes, Me., July 6; clergyman and writer on canon law.

Whiting, William Henry, 82.—Berkeley, Cal., July 26; Rear Admiral, U. S. N., retired.

Wilcox, Henry T., 37.—Vigo, Spain, June 22; U. S. Consul at Vigo.

Wilkinson, Rev. William, 77.—New York, December 7; Episcopal clergyman known as "Bishop of Wall Street."

Williams, George W., 56.—Charleston, S. C., July 16; Rear Admiral, U. S. N.

Williams, Brig. Gen. Roger D., 69.—Lexington, Ky., December 12; Indian fighter and veteran of Spanish War.

Wills, David C., 53.—Cleveland, O., October 22; Chairman of the Board of the Federal Reserve Bank at Cleveland.

Wilson, Gen. James Hamilton, 87.—Wilmington, Del., February 23; cavalry leader in Civil War and author.

Winslow, Rev. William C., 85.—Boston, February 2; archæologist.

Witmer, Charles B., 62.—Baltimore, Md., April 7; Federal jurist.

Wood, James, 86.—Mt. Kisco, N. Y., December 19; humanitarian.

Woodruff, Rollin S., 70.—Guilford, Conn., June 30; former Governor of Connecticut.

Woods, Charles A., 73.—Florence, S. C., June 21; Federal jurist.

Woods, Robert A., 60.—Boston, February 18; author and editor.

Woodworth, Prof. Jay Backus, 60.—Cambridge, Mass., August 5; Professor of Geology at Harvard University.

Woodworth, Newell B., 64.—Syracuse, N. Y., January 12; lawyer and philanthropist.

Workman, Mrs. Fanny Bullock.—Cannes, France, January 23; mountain climber.

Woolwine, Thomas Lee, 50.—Los Angeles, Cal., July 8; lawyer and reformer.

Wrenn, Robert D., 53.—New York, November 12; athlete and former national tennis champion.

Wright, Dr. Merle S., 65.—New York, April 26; Unitarian clergyman.

Z

Zeller, Lorenz, 74.—New York, October 8; jurist.

Zimmerman, Fred., 59.—Battle Creek, Mich., October 5; president of Cincinnati, Indianapolis & Western Railroad.

Zogbaum, Rufus F., 76.—New York, October 22; military and naval illustrator and writer.

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